The Dissertation Committee for Richard Albert Longoria certifies that this is the approved version of the following dissertation:

Grandparents Raising Grandchildren:

Population Characteristics, Perceived Neighborhood Risk, Alcohol Use, and Drug Misuse As Predictors of Emotional Well Being

Committee:

_____

Diana M. DiNitto, Supervisor

_____

Namkee G. Choi

_____

King Davis

_____

Ruth G. McRoy

_____

Catherine E. Ross

Grandparents Raising Grandchildren:

Population Characteristics, Perceived Neighborhood Risk, Alcohol Use, and Drug Misuse As Predictors of Emotional Well Being

by

Richard Albert Longoria, B.A.; M.S.; M.S.W.

Dissertation

Presented to the Faculty of the Graduate School of

the University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

May, 2005

Dedication

To my niece and nephew: Jennifer and Andrew Montemayor.

Set your aims high, work hard, and always respect yourself and others.

ACKNOWLEDGMENTS

This dissertation would not have been possible without the support of family, friends, former teachers, and members of the faculty and staff at the University of Texas at Austin and several universities. I would like to acknowledge the following individuals and organizations that made special contributions to this project.

I would like to acknowledge my dissertation committee chairperson, Dr. Diana DiNitto. From the inception of the formative ideas that lead to the dissertation topic through the oral defense, Dr. DiNitto believed in the importance of my research and consistently offered valuable guidance and encouragement. I am fortunate and proud to have conducted my dissertation research under her supervision. It is with great admiration and a deep sense of gratitude that I say, "thank you, Dr. DiNitto."

I would also like to acknowledge the members of my dissertation committee: Drs. Namkee Choi, King Davis, Ruth McRoy, and Catherine Ross. Each member provided valuable input throughout various stages of the dissertation proposal, research, and writing process. I am particularly thankful for their time, thoughtful insights and suggestions, introducing me to new literature, and interest in my work.

Dr. Elliott Smith at the National Data Archive on Child Abuse and Neglect at Cornell University and Dr. Richard Barth, Ariana Wall, and Rebecca Green at the University of North Carolina, Chapel Hill provided valuable consultation on an array of technical issues related to the National Survey of Child and Adolescent Well Being (NSCAW) data set. Many emails were exchanged throughout this dissertation project and these individuals were always generous with their time. The NSCAW is an

important contribution to social science and I would like to acknowledge the exceptional work of the NSCAW research team.

During my doctoral studies I had the good fortune to meet many fellow students who became good friends and comprised my support system. In particular, I would like to acknowledge Yolanda Rodriguez-Escobar. I will always be grateful for Yolanda's support through the "ups and the downs" throughout my doctoral education experience.

I would like to acknowledge my parents, Ricardo and Irma Longoria. I am thankful for their unconditional love which has always been a never-ending source of strength that continues to propel me forward with confidence and hope. Many "lessons of life" I learned from my parents were successfully applied during this project!

Each day I will try to express the depth of my appreciation to the person who made my dissertation and doctoral education possible, my lovely wife, Yvette. I always felt the awesome strength of her confidence in my abilities which empowered me to achieve a goal that, at times, did not think was possible. Through our discussions and the hours she spent diligently reading my work, Yvette's perspective always resulted in the clarification of my thoughts and "the point." Yvette, my love for you is endless.

Finally, I would like to thank The Hogg Foundation for Mental Health and the Substance Abuse Research Development Program at The University of Texas at Austin, School of Social Work for the generous funding that supported this research project. In addition, I would like to acknowledge The University of Texas at Austin for the fellowships I have received through the years. I will do my best to show the investment was money well spent!

Grandparents Raising Grandchildren:

Population Characteristics, Perceived Neighborhood Risk, Alcohol Use, and Drug Misuse As Predictors of Emotional Well Being

Publication No._____

Richard Albert Longoria, Ph.D.
The University of Texas at Austin, 2005

Supervisor: Diana M. DiNitto

This study is a secondary analysis of data collected during Wave 1 (November 1999 – April 2001) of the National Survey of Child and Adolescent Well Being (NSCAW). Using a probability sample of 465 grandparents, this study reports population demographic characteristics of grandparents raising grandchildren within state child welfare systems across the United States and examines the role of neighborhood conditions and alcohol and drug (AOD) consumption as predictors of these surrogate parents' emotional well being.

The Short-Form 12 Mental Component Summary was used to measure emotional well being. Items from the Composite International Diagnostic Interview were used to index grandparents' AOD consumption. A principal components analysis was used to construct "perceived neighborhood risk" to measure grandparents' perception

of neighborhood conditions. Descriptive and multivariate statistical analyses were conducted using national weights to derive population estimates.

Among this population of surrogate parents, an estimated 96.5% are female, 55.2% are aged 55 or younger, 41.8% did not complete high school, and 17.3% reported an annual household income of less than $10,000. The race/ethnic makeup of this population of caregivers is White, Non-Hispanic (55.7%), Black, Non-Hispanic (31.3%), Hispanic (8.3%), and Other, Non-Hispanic (4.6%). An estimated 40.2% and 59.8% of these grandparents cared for their grandchildren on a permanent and non-permanent basis, respectively. Additional population demographic characteristics are reported in this study.

Controlling for the effects of variables categorized as 1) grandparent demographic characteristics and resources and 2) grandchild demographic characteristics and caregiver demands, the multivariate analyses provided limited support for the hypothesis that increased perceived neighborhood risk negatively impacts grandparents' emotional well being. In addition, compared to grandparents who did not use alcohol or misuse a drug, those who self-reported drug misuse *and* alcohol use had statistically significant lower levels of emotional well being.

Implications for social work practice include the need to assess grandparents' AOD consumption and their perceptions of neighborhood conditions and provide needed services. Future research should focus on factors that contribute to high levels of grandparents' emotional well being to balance the emphasis on psychological distress evident in the extant literature.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

STATEMENT OF THE PROBLEM

Grandparents acting as surrogate parents for their grandchildren are a rapidly emerging family structure in the United States (U.S.) (Bryson, 2001). Only recently have they received researchers' attention (Bryson & Casper, 1999; Hayslip & Goldberg-Glen, 2000). A salient topic of research is these surrogate parents' emotional well being with a particular emphasis on identifying factors that predict their psychological distress (Burton, 1992; Kelley, Whitley, Sipe, & Yorker, 2000; Minkler, Fuller-Thomson, Miller, & Driver, 1997; Musil, 1998; Szinovacz, Deviney, & Atkinson, 1999). A national study found that 25.1% of grandparents raising grandchildren experience depression compared to 14.5% among non-caregiving grandparents (Minkler et al., 1997). However, the cause or causes of psychological distress among grandparents who assume the role of surrogate parent is not well understood (Pruchno & McKenney, 2002; Sands & Goldberg-Glen, 2000; Szinovacz et al., 1999).

An important reason for this gap in the literature is that the extant studies are primarily descriptive. With few exceptions, theoretical models have not been advanced to conceptualize the emotional well being of grandparents raising grandchildren and guide future research (Hayslip & Patrick, 2003; Hirshorn, 1998; Pruchno & McKenney, 2002; Sands & Goldberg-Glen, 2000; Szinovacz, 1998a). Most research studies of psychological distress among grandparents raising grandchildren appear to be informed by an assumption that factors impacting the emotional well being of this sub-group of grandparents are rooted in the context of caregiving. More specifically, the psychological

distress among grandparents raising grandchildren has been predominately conceptualized as "caregiver burden," defined by George and Gwyther (1986) as the "physical, social, psychological, and financial problems that can be experienced by family members caring for impaired older adults" (p. 253).

It has long been known that the demands of caring for older adults, people with disabilities, or children can contribute to psychological distress among caregivers (Grad & Sainsbury, 1963; Pearlin, Mullan, Semple, & Skaff, 1990; Telleen, Herzog, & Kilbane, 1989; Wright, Clipp, & George, 1993). Conceptualizing the emotional well being of grandparents raising their grandchildren as only, or primarily, a function of burden or other perceived problems that emerge as one negotiates the caregiver role is conceptually limiting and deemphasizes the 1) variation in life circumstances prior to the onset of assuming the caregiver role, 2) the social positions that grandparents occupy in society, and 3) factors emanating from characteristics of the environment in which grandparents are immersed that are not necessarily directly linked to the caregiving role. Thus, conceptualizing psychological distress among grandparents raising grandchildren as solely a function of caregiving limits both the variables researchers chose to study and knowledge building about emotional well being of this subpopulation of grandparents. Another theoretical perspective is needed to guide future research in the study of factors that explain the variation in emotional well being among grandparents raising their grandchildren. A more inclusive conceptual framework is needed.

Like previous investigators, this researcher is particularly concerned with factors that lead to the emotional pain and suffering among grandparents raising grandchildren as

reported in the research literature. But the conceptual model guiding this study is borader than caregiver burden. It is theoretically and empirically grounded in the social science research literature and conceptualizes emotional well being along a continuum of emotional states with positive and negative affect existing at opposite poles (see Figure 3.1 and Chapter III). It considers the emotional well being of grandparents raising their grandchildren as a psychosocial emergent of the perception of unique life circumstances. The theoretical model advanced in this study can guide future research on the emotional well being of grandparents raising their grandchildren beyond the conceptual boundaries of a caregiver burden framework.

A GAP IN THE RESEARCH LITERATURE

A synthesis of the research on grandparents raising grandchildren suggests that while the perceived burden of caregiving is linked to the experience of psychological distress, an array of other factors may influence grandparents' emotional well being that do not necessarily emanate from assuming or maintaining the caregiver role. For example, longitudinal studies using probability samples suggest that grandparents raising grandchildren, relative to non-caregiving grandparents and other groups of caregivers, have higher levels of psychological distress and poorer physical health that predates the onset of assuming the role of surrogate parent (Minkler et al., 1997; Strawbridge, Wallhagen, Shema, & Kaplan, 1997).

Qualitative studies (Burton, 1992; Minkler, Roe, & Price, 1992; Minkler & Roe, 1993) have reported that grandparents' physical and emotional well being is impacted by characteristics of children in their care, family dynamics, levels of support, as well as

neighborhood conditions. The in-depth interviews used in Burton's (1992) research revealed that some grandparent caregivers expressed psychological distress about the social conditions of their neighborhoods (Burton identified the theme of "neighborhood dangers" reported by grandparent caregivers) and their own level of alcohol and tobacco use. Minkler and Roe (1993) report that "drug war zones" characterize some inner-city neighborhoods in which grandparents are raising their grandchildren (p. 158).

Burton (1992) recommended that researchers identify environmental "contextual" variables to guide the future study of emotional well being among grandparents raising their grandchildren. In addition, Joslin and Brouard (1995) called for researchers to study alcohol and other drug (AOD) use and living conditions among grandparents raising their grandchildren. However, no study known to this researcher has examined the influence of these factors on the emotional well being of grandparents raising grandchildren.

The Relevance of Studying Neighborhood Conditions and Alcohol & Other Drug Use Among Grandparents Raising Grandchildren

Burnette (1997) maintains that many grandparents raising grandchildren live in inner city neighborhoods characterized by dense concentrations of poverty, but Fuller-Thomson and Minkler (2003) report that little is known about their living conditions. This study presents empirical and theoretical support (Chapters II & III) for the need to examine the influence of a specific and narrow domain of neighborhood characteristics (e.g., neighborhoods characterized by chronic personal/family safety concerns, violence, deteriorating and dilapidated buildings, and low levels of social control sanctioning

normative expectations) and grandparent AOD use[1] and misuse on the emotional well being of grandparents raising grandchildren.

For example, it is plausible that for some grandparents raising grandchildren, their emotional well being is linked to a longstanding immersion within social conditions (Wilson, 1987) such as neighborhood disorder (Ross & Mirowsky, 1999; Skogan, 1990), which has been shown to be linked to psychological distress (Curtona, Russell, Hessling, Brown, & Murry, 2000; Geis & Ross, 1998; Latkin & Curry, 2003; Mirowsky & Ross, 2003; Ross, 2000; Ross & Mirowsky, 2001). In addition, neighborhood characteristics (e.g., neighborhood disadvantage) have also been shown to predict levels of AOD use among residents (Boardman, Finch, Ellison, Williams, & Jackson, 2001; Wallace, 1999). Furthermore, the literature review (Chapter II) will show that increasing levels of AOD use (e.g., heavy drinking) and misuse (e.g., abuse and dependence) are linked to increasing levels of psychological distress that include affective disorders (Atkinson, 1999; Atkinson & Mirsa, 2002; Grant, 1995; Greeley & Oei, 1999; Holahan, Moss, Holahan, Cronkite, Randall, 2001; Liberto, Oslin, & Ruskin, 1996; NIAA, 2000).

Drawing on personal control theory (Mirowsky & Ross, 2003; Zarit, Pearlin, & Schaie, 2003), the conceptual model guiding this study proposes that increasing levels of 1) AOD use and misuse and 2) observable cues in neighborhoods perceived as threatening can cumulatively erode one's sense of personal control which leads to decreasing levels of emotional well being among grandparents raising their grandchildren. The construct of "sense of personal control" is conceptualized as

[1] The terms "AOD use" and "AOD misuse" will be clarified further in Chapters II and IV. However, "misuse" is a broad term and used here to include the diagnostic categories of AOD abuse and dependence as defined in the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders*.

substantively influenced by social forces and a key theoretical bridge that links neighborhood conditions and AOD use and misuse to the emotional well being of grandparents raising grandchildren.

It is important to emphasize that the conceptual model that guides this study is not deficit-based, as it is also theorized that neighborhood conditions and one's sense of personal control can also interact in a manner whereby high levels of positive affect may contextually emerge. Thus, from the theoretical framework that guides this study, the emotional well being among grandparents who assume the role of surrogate parent for their grandchildren is not conceptualized as merely a function of the onset of caregiving or burden per se, but rather a psychosocial emergent grounded within the context of life circumstances that influence a grandparent's sense of personal control (Chapter III, Figure 3.1).

Contribution & Purpose of the Study

This study contributes to the research literature in three ways. First, it builds on early qualitative research calling for a need to study the role of neighborhood conditions and AOD use on the emotional well being of grandparents raising grandchildren. Second, it synthesizes the broader social science research literature, which reports a link between neighborhood characteristics, AOD use and misuse, and emotional well being. Third, it grounds the perception of neighborhood conditions and AOD use and misuse within a relevant theoretical model to conceptualize emotional well being among these surrogate parents and can be used to inform future studies.

The aim of this study is not necessarily to refute a caregiver burden framework, nor to demonstrate that the source of psychological distress among grandparents raising grandchildren predates the onset of assuming the role of surrogate parent. The aim is to study whether there is an impact of neighborhood conditions and AOD consumption on emotional well being to provide data that can be applied to relieve the documented pain and suffering reported among grandparents raising grandchildren. The study has four facets, which are to 1) suggest to researchers that studies on the emotional well being of grandparents raising grandchildren should not be constrained by a conceptual bias towards an exclusive examination of variables linked to problems associated with negotiating the caregiver role, 2) apply a conceptual model that draws on existing theory to guide the current study and can be used to guide future research to increase knowledge of the emotional well being of grandparents raising grandchildren, 3) identify and understand the factors that lead to the emotional pain and suffering reported among grandparents raising their grandchildren, and 4) report findings that can be utilized by policy practitioners, direct-practice interventionists, and those concerned about the well being of a population referred to as the "forgotten caregivers" (Minkler, Roe, and Price, 1992, p. 760).

SCOPE OF THE PROBLEM

Grandparents raising grandchildren are one form of an emerging array of diverse and non-traditional families in the U.S. (Walsh, 1993). Much of the contemporary literature on grandparents raising grandchildren describes this family structure emerging in response to complex social problems (e.g., child maltreatment, HIV/AIDS, parental

substance abuse, divorce, teen-age pregnancy, and an increasing rate of incarcerated women) in the United States. According to Cherlin and Furstenberg (1986), significant family crises cause grandparents to assume a more "parent-like" role in the lives of their grandchildren. The central problem is not conceptualized as the emergence of the family structure consisting of grandparents raising grandchildren, and there is no intent to "pathologize" this sub-group of grandparents or their families. Rather the problem is conceptualized as a poor understanding of the factors that impact these surrogate parents' emotional well being.

To the degree that knowledge about psychological distress among grandparent caregivers remains rudimentary, it is likely that (1) a growing number of grandparents raising their grandchildren will endure the pain and suffering brought about by poor mental health, (2) an increasing number of children will flow into an overburdened foster care system, and (3) the need for nurturing and permanency among these children will not be met, which can negatively impact their emotional and social development. For these reasons it is important to begin a discussion on grandparents raising their grandchildren with an overview of selected population demographics followed by the magnitude and prevalence of social problems which influence the emergence of this family structure.

A Closer Look at Grandparents Raising Grandchildren

Grandparents make up 56.5% of the total population in the U.S. and there are more grandparents alive than at any other time in history (Bengtson, 1985; U.S. Census, 2000a; 2000b). According to Szinovacz (1998b), Americans first become grandparents

at a mean age of 47.0 (45.8 for women vs. 48.7 for men) and many can expect to live 30 years of their lives as grandparents given the current mortality rates in the United States. During the years of grandparenthood, many grandparents will assume the role of surrogate parent or some level of caregiver responsibility for their grandchildren.

Currently, an estimated 5.8 million grandparents live in a household with at least one grandchild, and 2.4 million are responsible for these children's care (U.S. Census, 2000). Between 1970 and 2000, the number of grandchildren living in grandparent-headed households increased 105%, from 2.2 million to 4.5 million nationwide (Bryson, 2001; U.S. Census, 2001). The number of grandchildren living with their grandparents without any parent in the home increased 57% between 1992 and 2000 (U.S. Census, 2001), and it is estimated that 6.3% of all children (4,556,502) in the U.S. are grandchildren living in grandparent-headed households (Bryson, 2001). According to Szinovacz (1998b), an estimated 11% of all grandparents (i.e., an estimated 17,476,914 grandparents) have been a surrogate parent for their grandchildren *at some point in their lives*. This percentage is likely to increase in the foreseeable future based on U.S. family demographic trends.

Most grandparents raising grandchildren are women (77%) (Fuller-Thomson et al., 1997). Grandparents raising grandchildren vary substantially in age from the late twenties to 80+ years (Burton & Dilworth-Anderson, 1991; Burton, 1992; Fuller-Thomson et al, 1997; Joslin & Brouard, 1995; Musil, 1998). A national study reported grandparents raising grandchildren have a mean age of 59, which is significantly lower ($p<.01$) (but perhaps not substantially lower) than the mean age of 62 reported among all

non-caregiving grandparents (Fuller-Thomson et al., 1997). An estimated 74% of caregiving grandparents reside in urban areas, 57% are in the workforce, 43% did not graduate from high school, and 46% are unmarried (Fuller-Thomson, Minkler, & Driver, 1997).

In 2000, 9.6% of all individuals 18-64 years of age in the U. S. lived below the federal poverty line compared to 18.8% of all grandparents raising their grandchildren (Bryson, 2001; Proctor & Dalaker, 2002, p. 3). Proctor and Dalaker (2002) also reported that 9.9% of all adults aged 65 years and older live below the federal poverty line. In 38 states, the rate of grandparent caregivers living in poverty exceeded 9.6% but this rate varies widely by state (in the District of Columbia, the poverty rate for grandparents raising their grandchildren is 20.6%). Among the 26% of grandparent caregivers who are renters, one-quarter spend more than half of their income on rent and utilities, and 28% live in overcrowded conditions based on government housing standards (Fuller-Thomson & Minkler, 2003).

Most grandparents raising grandchildren are White Non-Hispanic (62%) with African-American and Hispanic grandparents accounting for 27% and 10% of this subpopulation of grandparents, respectively (1% classified as "other"). However, in a national study, Black grandparents were more likely (i.e., higher odds, odds ratio = 1.83, $p < .05$) to be a grandparent raising a grandchild than Non-Black grandparents (Fuller-Thomson et al., 1997). Approximately 29.1% of all African-Americans grandmothers report that they have been a surrogate parent for a grandchild at some time in their life,

compared to 18.8% and 12.1% of Hispanic and White grandmothers, respectively (Szinovacz, 1998b).

These data reveal important patterns and marked heterogeneity among grandparents raising grandchildren within the United States. Thus, while for some grandparent caregivers psychological distress may be linked to the onset of factors associated with assuming the role of surrogate parent, their emotional well being may also be substantively influenced by a social web of ecological and socio-economic structures and processes in which they live (King, Russell, & Elder, 1998; Massey, 1996; Mirowsky & Ross, 2003; Wallace, 1999; Wilson, 1987, 1996). These latter factors have not been the subject of study among grandparents raising grandchildren.

Why Do Grandparents Assume the Role of Surrogate Parent?

The kinship care and family literature describes the role of extended family members in caring for children over time (Cherlin & Furstenberg, 1986; Frazier, 1939; Hegar & Scannapieco, 1999; Hill, 1999; Miller, 1979; Stack, 1974; Sudarkasa, 1981; von Hentig, 1946; Wilson, 1989). Although grandparents' familial roles vary across culturally defined social systems of kinship and historically shaped contexts (Hunter & Taylor, 1998; Ikels, 1998, Kamo, 1998; Williams & Torrez, 1998), it is generally grandmothers who play a prominent caregiving role when the parent is not able to care for a child (Crumbley & Little, 1997; DHHS, 2000).

To illustrate an array of forms in which grandparents provide care for their grandchildren, Hirshorn (1998) developed a two-dimensional matrix to conceptualize nine caregiving domains by level of responsibility and unit of time (Table 1.1). For

example, cells one, four, and seven generally characterize the typical forms of "baby-sitting" that grandparents provide to support parents who are working, seeking employment, needing respite, or engaged in activities to increase their income potential and self-sufficiency. However, the circumstances leading to the more recent increase in children living in grandparent-headed households (and particularly when neither parent is in the household) in the U.S. are not directly associated with grandparent efforts to help mitigate the costs of childcare for working parents or a function of cultural norms (Burnette, 1997). Instead, they are related to crises or significant long-term disruption in the child's nuclear family.

Table 1.1
Categories of Grandparent Caregiving by Time and Level of Responsibility

Time Frame	Level of Responsibility		
	Helping	**Co-parenting**	**Surrogate Parenting**
Occasional/Emergency	1. Occasional helper	2. Occasional co-parent	3. Occasional surrogate parent
Short-term	4. Short-term helper	5. Short-term co-parent	6. Short-term surrogate parent
Routine/Long-term	7. Long-term helper	8. Long-term co-parent	9. Long-term surrogate parent

(Hirshorn, 1998, p. 201)

Family Crisis & Chronic Circumstances

Grandparents assume the role of surrogate parent to their grandchildren in times of significant family crisis and circumstances that either temporarily blur or permanently dissolve the integrity, cohesiveness, and/or autonomy of the child's previous family structure (Cherlin & Furstenberg, 1986; Troll, 1985). In these circumstances, and of particular relevance to this study, is the form of grandparent caregiving responsibility captured in cells six or nine (or when grandparents assume the lead co-parent role) of

Hirshorn's matrix. Thus, the focus of this study is grandparents who assume the role of primary caregiver (or surrogate parent) to their grandchild(ren).

The factors associated with the rise of children living in grandparent-headed households are parental AOD misuse, HIV/AIDS, the increase in incarcerated women, divorce, child maltreatment, mental illness or death of the grandchild's parent, and teen-age pregnancy (Burnett, 1997; Caliandro & Hughes, 1998; Dressel & Barnhill, 1994; Goodman & Silverstein, 2002; Jendrek, 1994; Joslin & Brouard, 1995; Minkler & Roe, 1993). An accumulating body of research suggests that parental AOD misuse, which contributes to child maltreatment, has supplanted divorce as the driving force underlying the reasons why grandparents assume the surrogate parent role (Burnett, 1997; Goodman & Silverstein, 2002; Kelley, 2002; Ruiz, 2004). In particular, the U.S. crack-cocaine epidemic of the 1980s fueled the more recent increase in grandparents caring for their grandchildren (Besharov, 1989; Kopperlman & Jones, 1989; Minkler & Roe, 1993; Musto, 1989).

Parental Misuse of Alcohol and Drugs & Child Maltreatment

It is not parental AOD misuse per se, but the link between these behaviors and child maltreatment that substantively influences the flow of children into grandparent-headed households. Huang, Cerbone, and Gfroerer (1998) estimate that over 8.2 million children in the U.S. live in a household with at least one parent who is dependent on alcohol and/or in need of treatment for illicit drug abuse. Parental AOD misuse is systemically associated with HIV/AIDS, incarceration, mortality, divorce, and a parent's

inability to generate income and maintain a household (Burnette, 1997; Jendrek, 1994; DHHS, 1999).

In 2002, state child protection agencies reported that 896,000 children were victims of maltreatment (DHHS, 2004). An estimated 33%-66% of these cases are attributed to the relationship between parental AOD misuse and child maltreatment (DHHS, 1999). AOD misuse is identified as the most pressing problem impacting families in child protection agencies nationwide (Peddle & Wang, 2001). The problem is likely worse because child neglect and abuse is underreported and national probability samples fail to capture the true incidence of child maltreatment in the U.S. (Sedlack & Broadhurst, 1996).

In many of these circumstances, family members, and most often grandparents, informally assume a parenting role for children whose parents misuse AODs (Burnette, 1997). According to Troll (1983; 1985) and Burnette (2000), the majority of grandparents would prefer not to assume this surrogate parenting role, which is often associated with significant family problems and conflict along with the grandparent's profound disappointment, anger, shame, loss, and social isolation. Thus, while grandparents' role as caregivers to their grandchildren is not a recent phenomenon, the rapid increase and the reasons grandparents are assuming the role of surrogate parents are unique to social problems characteristic of the past thirty years.

RESEARCH QUESTIONS & HYPOTHESES

The following is an overview of the research questions and hypotheses that guided this study. The study variables and plans for data analysis are described in detail

in Chapter IV. Personal control figures prominently in the conceptual model (Chapter III, Figure 3.1) because it conceptually links the perception of neighborhood characteristics and AOD use to emotional well being and informed the rationale to select these variables for study. While the national data set used in this study did not contain a variable that would serve as a proxy for personal control, an examination of perceived neighborhood characteristics and AOD use, as proposed below, was determined to be of importance and the findings would make a contribution to the field and stimulate future research in this area. The principal aim of this study is not to test the conceptual model shown in Figure 3.1 per se, but to show that characteristics of neighborhood conditions and AOD may be predictors of emotional well being among grandparents raising grandchildren. An empirical test of the conceptual model (Figure 3.1) is the aim of a future research, although is used here to conceptually ground this study.

Research Question 1

What are the demographic characteristics of grandparents raising grandchildren within the U.S. child welfare system?

Research Question 2

How does the emotional well being of grandparents raising grandchildren compare to the general U.S. population by age and gender groups?

Research Question 3

What is the prevalence of alcohol use, drug misuse, and alcohol and/or drug misuse among grandparents raising their grandchildren?

Research Question 4

Is perceived neighborhood risk a significant factor in predicting emotional well being among grandparents raising grandchildren?

Hypothesis

Higher levels of perceived neighborhood risk are significantly associated with lower levels of emotional well being among grandparents raising their grandchildren after adjusting for the caregiving grandparent's age, race/ethnicity, physical health, marital/partner status, education level, annual household income per child in the home, and employment status, presence of a secondary caregiver in the home, caregivers' status (permanent/non-permanent), and grandchild's age, health status, number of years in the home, and level of behavior problems.

Research Question 5

Is alcohol use a significant factor in predicting the level of emotional well being among grandparents raising grandchildren?

Hypothesis

Alcohol use, compared to no alcohol use, is significantly associated with lower levels of emotional well being among grandparents raising their grandchildren after adjusting for the caregiving grandparent's age, race/ethnicity, physical health, marital/partner status, education level, annual household income per child in the home, and employment status, presence of a secondary caregiver in the home, caregivers' status (permanent/non-permanent), grandchild's age, health status, number of years in the home, and level of behavior problems, and perceived neighborhood risk.

Research Question 6

Is drug misuse a significant factor in predicting the level of emotional well being among grandparents raising grandchildren?

Hypothesis

Drug misuse, compared to no drug misuse, is significantly associated with lower levels of emotional well being among grandparents raising their grandchildren after adjusting for the caregiving grandparent's age, race/ethnicity, physical health, marital/partner status, education level, annual household income per child in the home, and employment status, presence of a secondary caregiver in the home, caregivers' status (permanent/non-permanent), grandchild's age, health status, number of years in the home, and level of behavior problems, and perceived neighborhood risk.

Research Question 7

Is alcohol use and/or drug misuse a significant factor in predicting the level of emotional well being among grandparents raising grandchildren?

Hypothesis

Alcohol use and/or drug misuse, compared to no alcohol use and/or drug misuse, is significantly associated with lower levels of emotional well being among grandparents raising their grandchildren after adjusting for the caregiving grandparent's age, race/ethnicity, physical health, marital/partner status, education level, annual household income per child in the home, and employment status, presence of a secondary caregiver in the home, caregivers' status permanent/non-permanent), grandchild's age, health

status, number of years in the home, and level of behavior problem, and perceived neighborhood risk.

Research Question 8

Is there any evidence that a statistically significant interaction between the AOD and perceived neighborhood risk variables significantly affect the emotional well being among grandparents raising grandchildren?

A SUMMARY OF THE SIGNIFICANCE OF THIS STUDY

Theoretical literature and empirical evidence indicate that neighborhood conditions and AOD misuse can impact mental health. Thus, this study contributes to the research literature on grandparents raising grandchildren because it 1) aids in understanding the causes of the high rates of psychological distress among this sub-group of grandparents, 2) elucidates the living conditions and AOD use among this sub-group of surrogate parents, and 3) responds to calls for theoretical models to guide research on the emotional well being of grandparents raising grandchildren. In addition, the conceptual model and study findings serve as a spring board to future research that conceptualizes the emotional well being of grandparents raising their grandchildren as a psychosocial emergent of life circumstances. Most important, this study contributes to a knowledge base that can be applied to alleviate the human suffering and pain reported among this understudied group.

CHAPTER II

LITERATURE REVIEW

This literature review (1) locates the study of grandparents within the social science literature, (2) synthesizes and critically evaluates published research studies on the emotional well being of grandparents raising grandchildren, and (3) presents a clear and compelling rationale for studying the impact of neighborhood conditions and AOD use on the emotional well being of grandparents raising grandchildren. This chapter illuminates new directions for research on factors that impact the emotional well being of grandparents raising grandchildren.

THE STUDY OF GRANDPARENTHOOD:

AN OVERVIEW OF RESEARCH THEMES

In the late 1960s, Billingsley (1970) observed that "the family as an institution has not been given the systematic thought, study, and theoretical speculation such an important institution in society deserves" (p. 133). It is not surprising then that grandparenthood, "one of the oldest social roles known in human experience," (Bengtson, 1985, p. 11) has hardly been studied. Prior to the mid-20th century, any reference to grandparents was "a mere footnote in the social scientific literature on the family," and researchers viewed grandparents as occupying "an unimportant role that merited little attention" (Cherlin & Furstenberg, 1986, pp. 3-4; Crawford, 1981).

The earliest studies of grandparents as a specific topic of scientific inquiry can be traced to an anthropological study and a conceptual sociological treatment of the grandmother that appeared in the 1940s (Radcliffe-Brown, 1940; von Hentig, 1945).

Most research on grandparenthood emerged from the literature on the family and older adults after 1950 (Szinovacz, 1998). During this period, a growing number of researchers began to study kinship networks outside the boundaries of the traditional nuclear family structure and interest in human development expanded beyond childhood and adolescence and into the lives of older adults (Adams, 1970; Apple, 1956; Chiriboga, 1989; Erikson, 1982; Neugarten & Weinstein, 1964; Neugarten, Moore, & Lowe, 1970; Parsons, 1943; Winch, 1968;). Despite its pervasiveness, little was known about the grandparenting role. Researchers began to increase attention to "grandparenthood" as a separate developmental period in the life course (Cherlin & Furstenberg, 1986; Kivnick, 1985; Neugarten & Weinstein, 1964; Robertson, 1977; Szinovacz, 1998).

Since the mid-20th century, grandparenthood has largely been studied using survey and ethnographic methods. The early studies specifically on grandparenthood were conducted by Radcliffe-Brown (1940; 1952), von Hentig (1945), Albrecht (1954), Sussman (1954), Apple (1956), and Nuegarten and Weinstein (1964). These scholars were among the first to describe levels of formality that characterize the relationship between grandparents and their grandchildren (Apple, 1956; Radcliffe-Brown, 1940; 1952), the role grandparents play when parents are no long willing or able to care for their children (von Hentig, 1945), factors which influence the grandparent role within the families of their children (Albrecht, 1954; Sussman, 1954), and the meaning of grandparenthood and styles of grandparenting (Nuegarten & Weinstein, 1964). Since the 1960s, studies of grandparenthood have expanded to include the study of grandparent styles (Cherlin & Furstenburg, 1986; Henry, Ceglican, & Mathews, 1992; Jones, 1973;

McCready, 1985; McGreal, 1986), role satisfaction (Bengtson, 1985; Burton, 1987; Crawford, 1981; Fischer, 1983; Robertson, 1977; Wood, 1982), and the symbolic meaning of grandparenthood (Bengtson, 1985; Cunnighham-Burley, 1986; Doka & Mertz, 1988; Kivnick, 1982). Other studies have examined intergenerational relations (Aldous, 1995; Kopera-Frye & Wiscott, 2000; Silverstein, Giarrusso, & Bengtson, 1998), grandparent-grandchild relations (Apfel & Seitz, 1991; Baranowski, 1982, 1990; Creasey & Koblewski, 1991; Denham & Smith, 1989; Eisenberg, 1988; Kennedy, 1992), the mediating influence of parents on the relationship between grandchild-grandparent relationship (Gladstone, 1989), the influence of the grandparents on the parent-children relationship (Aldous, 1985), perceptions of grandchildren about their grandparents (Robertson, 1976), race/ethnic and cultural differences on grandparenthood (Bahr, 1994; Burton, Dilworth-Anderson, & Merriwether-deVries, 1995; Goodman & Silverstein, 2002; Hunter & Taylor, 1998; Ikels, 1998; Johnson, 1983; Kamo, 1998; Kivett, 1993; Schmidt & Padilla, 1983; Williams & Torrez, 1998), and gender differences (Baranowski, 1985; Thomas, 1989).

Researchers have not addressed these themes specifically among grandparents who assume the role of surrogate parent for their grandchildren. In fact, several early studies on grandparenting excluded grandparents raising grandchildren from the research samples or did not elaborate on findings unique to this sub-group (Robertson, 1977). Not until the late 1980s when demographers and other social science researchers brought attention to the growing numbers of grandparents raising grandchildren across the U.S., did this subpopulation become a major focus of research on grandparenthood (Bryson,

2001; Kennedy & Kennedy, 1988). Perhaps early researchers did not want to focus exclusively on grandparenthood in a "problem context." However, as more grandparents become surrogate parents for their grandchildren, the need for research on this topic is understandable.

GRANDPARENTS RAISING GRANDCHILDREN

The current study of grandparents raising grandchildren has origins in von Hentig's (1945) characterization of this group of surrogate parents as "rescuers." However, von Hentig's use of the term "rescuer" does not exclusively reference children but rather is broader in scope to include grandparents' concern for the family of the grandchildren as well. Troll's (1983) widely referenced characterization of grandparents as "family watchdog" appears to be based on von Hentig's (1945) observation that "[grandparents] stand ready to intervene as first and last aid as soon as the framework of the [family] is flagging or breaking up" (p. 3). While von Hentig's work sheds light on the circumstances and conditions in which grandparents assume the role of surrogate parent, he did not address the well being of this sub-group of grandparents.

Albrecht (1954) studied a representative sample of grandparents over 65 years of age from a small mid-western community and reported that in the geographical area sampled, it was rare for grandparents or great-grandparents to assume the role of surrogate parent for their grandchildren. Although grandparents raising grandchildren was not the central focus of this study, among the grandparents who were raising their grandchildren, Albrecht reported that "no evidence emerged to indicate that they covet [the role of surrogate parent]" (Albrecht, 1954, p. 204). Subsequent early studies that

shed light on the emotional well being of grandparents who assume the role of surrogate parent emerged from research focused primarily on understanding the perceived meaning of grandparenthood and styles of grandparenting.

Neugarten and Weinstein (1964) used a convenience sample of 70 married middle-class grandparents in the Chicago area and described grandparent styles, perceptions of role significance, and the ease in which grandparents perform their roles. In this study, 14% of the grandmothers reported assuming a role these researchers identified as the "parent surrogate" grandparent style. However, this grandparenting style received little elaboration beyond the following description:

> The surrogate parent occurs only, as might have been anticipated, for grandmothers in this group. It comes about by initiation, on the part of the younger generation, that is when the young mother works and the grandmother assumes the actual caretaking responsibility for the child. (Neugarten & Weinstein, 1964, p. 202)

Neugarten and Weinstein reported that 36% of the grandparents expressed emotional discomfort associated with (1) the image of a grandparent conflicting with their self-image, (2) conflict with their children over child-rearing practices, and (3) caregiving responsibilities assumed by the grandparent. They did not describe to what degree emotional discomfort was associated with the "parent surrogate" grandparenting style per se.

While studies had not yet been informed by research questions designed to understand emotional discomfort among grandparents raising grandchildren (as suggested by Neugarten and Weinstein), further insights into the emotional well being of this group emerged from the first national study of grandparenthood using surveys and in-depth

interviews conducted in the early 1980s by Cherlin and Furstenberg (1986). These researchers reported that most grandparents adhered to a "norm of non-interference":

> This "norm of noninterference," is recognized as a central feature of the relationship between older parents and their adult children in the United States. Grandparents are loath to violate this powerful norm; "interfering" is seen as one of the worst sins a grandparent can commit. The power of the norm reflects the ascendancy of the husband-wife bond over the parent-child bond; parents have no "right" to tell their married children what to do. (Cherlin & Furstenberg, 1986, p. 57)

Cherlin and Furstenberg suggested that further research was needed to understand how the perception of violating this "norm of non-interference" might impact the emotional well being of grandparents, particularly cultural variations among those who have assumed the role of surrogate parent for their grandchildren. Thus, the "norm of non-interference" reported by Cherlin and Furstenberg, coupled with the studies reported by Albrecht (1954), Neugarten & Weinstein (1964), and Troll (1979; 1983), suggested that grandparents raising grandchildren may experience some level of emotional discomfort associated with circumstances surrounding the role of surrogate parent. However, specific research questions addressing the grandparents' reluctance to assume the role of surrogate parent to their grandchildren and the emotional discomfort expressed by those in a "parent surrogate" role remained unexamined until the late 1980s.

STUDIES OF THE EMOTIONAL WELL BEING OF GRANDPARENTS RAISING GRANDCHILDREN

During the 1980s, researchers began to study grandparents who assumed a more active parenting role when their adolescent daughter gave birth to a child and remained in the grandparent-headed household (Flaherty, Facteau, & Garver, 1987; Flaherty, 1988). These studies suggested that assuming caregiving responsibilities did not negatively

impact the grandmother's emotional well being. Indeed, the findings suggested that many grandmothers appeared to experience the role of "back-up" caregiver as personally rewarding and meaningful.

Kivnick (1981; 1982), Burton (1987), and Kennedy and Kenney (1988) were among the first to specifically address mental health issues related to grandparenthood. Kivnick applied Eriksonian development theory (Erikson, 1982) to conceptualize mental health during grandparenthood. The ways psychosocial conflicts are addressed during grandparenthood have important implications for grandparents' (Kivnick, 1981).

Burton's research (see Burton & Bengtson, 1985; Burton, 1987) suggests that grandparents raising grandchildren experience psychological distress because they assume a time-disordered role. Neugarten (1968) earlier maintained that "off-time" life events have the potential to be experienced as stressful to the degree they disrupt the sequence of normative life transitions. Thus, becoming a surrogate parent to a child is a "time-disordered" role and has been identified as an "off-time" sequence in the life course (Burton & Bengtson, 1985). After years of fulfilling a myriad of role expectations tied to parenthood, many "off-time" grandparents find themselves re-assuming (or are not able to relinquish) the role of parent, which can be a source of psychological distress.

Kennedy and Kennedy (1988) brought attention to an increasing number of grandparents raising grandchildren who were in need of psychotherapy. These researchers reported the anxiety, fear, anger, and ambivalence grandparents raising grandchildren expressed. With reference to grandparents raising grandchildren, these researchers write, "The decreasing energy level, the higher incidence of illness and

symptoms of aging, and, with the loss of functions, the tendency to seek greater control and become more rigid are not the qualities needed by parents of active children or rebellious teenagers" (p. 30).

In the early 1990s, studies in the gerontology and nursing research literature suggested that many grandparents raising their grandchildren were in poor emotional and physical health. As more researchers became interested in this area, the focus of study evolved into a particular emphasis on the psychological distress reported among an increasing sub-group of grandparents who were assuming the role of surrogate parent for their grandchildren across the U.S. (Bryson, 2001). A research agenda on the emotional well being among grandparents raising grandchildren appears to have been influenced, in part, by the substantial attention placed on earlier studies, conducted during the 1980s, which examined the well being of adults caring for aging parents afflicted with Alzheimer's disease and disabled spouses incapacitated by strokes, heart attacks, and other debilitating diseases (Lawton, Kleban, Moss, Rovine, and Glicksman, 1989).

Studies emerging from research on adults caring for their spouses and/or aging parents suggested that emotional distress was linked to caregiving when the caregiver experienced the caregiver role as significantly burdensome. The term "caregiver burden" emerged from the research literature on adults caring for their spouses and/or aging parents. It was adopted to describe an array of negative effects on psychosocial well being associated with the caregiving role (Wright, Clipp, & George, 1993). Thus, studies on grandparents raising grandchildren drew upon the "caregiver burden" framework

appears as a model for conceptualizing the emotional well being of these caregivers of children with a particular emphasis placed on the experience of psychological distress.

An Overview of Empirical Studies:

Key Research Designs, Sample Characteristics, & Findings

As Chapter I indicated, the studies on emotional well being among grandparents raising their grandchildren emphasize factors that contribute to psychological distress rather than the continuum of emotional well being among this sub-group of grandparents. The following review of the empirical studies on emotional well being among grandparents raising grandchildren presents the pattern of findings reported in the research literature across several disciplines. Tables 2.1 and 2.2 captures key research designs, sample characteristics, and major findings across studies on emotional well being among grandparents raising grandchildren and contributes to a comprehensive presentation of the research literature on this topic.

Table 2.1
Comparison of Key Research Design & Demographic Data Across Major Studies on Grandparents Raising Grandchildren[1]

Study	Study Design	Sample Type Size	Sample Location	Comparison Group	Age[2] (Range)	Female (%)	Race/ Ethnicity
Burton (1992)	Ethnographic/ Cross-sectional	Non-Probability Pooled n=60	US Northwest (NW) & Northeast (NE)	No	NW: Median:52 (43-70) NE: Female Median:57 (46-82) Male Median:63 (62-75)	NW: 100% NE: 78%	Black: 100% Black: 100%
Minkler et al. (1992)	Ethnographic/ Cross-sectional	Non-Probability n=71	Oakland, CA	No	Median:53 (41-79)	100%	Black: 100%
Kelley (1993)	Survey/ Cross-sectional	Non-probability n=41	NE US	No	Female Mean: 53.5 Male Mean: 78.0	98% 2%	Black: 2.4% White: 97.6%

Table 2.1, Continued

Study	Study Design	Sample Type/ Size	Location of Sample	Comparison Group	Age[2] (Range)	Female	Race/ Ethnicity
Dowdell (1995)	Survey/ Cross-sectional	Non-Probability n=154	Not reported	No	Mean:54.8 (31-77)	100%	Black: 59% White: 39% Hispanic: .7% Native Am: 1.3%
Musil (1998)	Survey/ Cross-sectional	Non-Probability n=90	Cleveland, OH Metropolitan area	Yes[3] Primary n=58 Partial n=32	Mean:54.5 (39-82)	100%	Black: 75.6% White: 24.4%
Hayslip et al. (1998)	Survey/ Cross-sectional	Non-Probability n=193	Dallas-Fort Worth, TX	Yes Traditional (little/no caregiving) n=92 Custodial: Grandchild (GC) has low-level problem n=51 Custodial: GC has high level problem n=50	Mean:58.5 (41-71) Mean:52.6 (30-71) Mean:56.3 (43-68)	80% 80% 78%	Black: 11% Hispanic: 8% White: 81% Black: 20% Hispanic: 0% White: 80% Black: 8% Hispanic: 8% White: 84%
Emick & Hayslip (1999)	Survey/ Cross-sectional	Non-Probability n=78	Dallas-Fort Worth, TX	Yes Traditional (little/no caregiving) n =23 Custodial: GC has low-level problem n=24 Custodial: GC has high level problem n=28	Mean:60.2 (40-77) Mean:56.8 (47-70) Mean:56.1 (44-71)	78.3% 66.7% 85.8%	White: 100% Black: 4.2% White: 95.8% Hispanic: 14.3% White: 85.7%
Force et al. (2000)	Survey/ Cross-sectional	Non-probability n=130	New York State	Yes GC with disability n=31 GC without disability n=99	Modal age range: (50-59) (50-59)	90% 93%	Black: 48% White: 39% Native Am: 3% Hispanic: 10% Black: 60% White: 27% Native Am: 3% Hispanic: 4% Other: 3%
Burnette (1999)	Survey/ Cross-sectional	Non-Probability n=74	New York City	No	Mean:63 (50-78)	93%	Hispanic: 100%

Table 2.1, Continued

Study	Study Design	Sample Type/ Size	Location of Sample	Comparison Group	Age[2] (Range)	Female	Race/ Ethnicity
Giarrusso et al. (1996)	Survey/ Longitudinal	Probability n=659	Los Angeles, CA	Yes Parenting Grand Parent (GP) n=12 Co-Parenting GP n=27 Non-Parenting GP n=620	Mean at Baseline 58 (38-72) 51 (31-86) 62 (31-92)	 8% 74% 58%	Did not provide specifications: Documented "predominately white" sample
Minkler et al. (1997)[4a,b] Fuller-Thomson et al. (1997)[5]	Survey/ Longitudinal	Probability n=2380	Unknown	Yes GP Caregiver (GPCG) 5 yr or less n=79 Non-GPCG n=2301	Mean 59.4 62.3	 77% 56%	Black: 27% White: 62% (Non-Hispanic) Hispanic: 10% Other: 1% Black: 10% White: 84% (Non-Hispanic) Hispanic: 6% Other: 0%
Strawbridge et al. (1997)	Survey/ Longitudinal	Probability n=1885	Alameda County, CA	Yes GP n=42 Spouse n=44 Adult Child n=130 Non-caregiver n=1669	 60.9 (49-73) 64.6 (51-75) 57.8 (48-74) 61.8 (46-75)	 73.8% 63.6% 66.1% 55.4%	Reported % by group for Black only: 26.2 6.8 6.9 7.3
Sands et al. (2000)	Survey/ Cross-sectional	Non-Probability n=129	Metropolitan and suburban Philadelphia	No	Restricted sample to 50 years of age and older. Two groups reported: "Younger" Mean: 54 (50-59) "Older" Mean 66 (60-90)	95%	Black: 51% White: 49%
Kelley et al. (2000)	Survey/ Cross-sectional	Non-Probability n=102	Southeastern US	No	Mean: 56.17 (38-78)	100%	Black: 100%
Pruchno & McKenney (2002)	Survey/ Cross-sectional	Non-Probability n=867	Urban areas (90%) across 44 States in US	No	Mean: 57.9 (50-83)	100%	Black: 43.7% White: 56.3%

Table 2.1, Continued

1:Szinovacz et al. (1999) study is omitted as aggregate demographic data reported in study would not be meaningfully comparable across studies.
2:Gender sub-group age means/median are provided when no other aggregate measure are reported in study.
3:Musil (1998) did not provide demographic data by comparison group, only overall sample aggregates are reported in study.
4:a:Grandparents identified from nationally representative sample of U.S. households. However, grandparents were not randomly selected and their location of residence was not reported.
b:Demographic data are specific to analysis comparing grandparents who assumed surrogate parent role within 5 years (n=79) vs. non-GPCG comparison group.
5. Both studies used same data.

Table 2.2
Comparison of Key Demographic Data & Findings Across Major Studies on Grandparents Raising Grandchildren[1,2]

Study	Educ[3]	Household Income	Married (%)	Multivariate Statistical Analysis Conducted	Standardized Measure of Emotional Well Being	Major Findings
Burton (1992)	≥12 years 45%	Not reported	28%	No	No standardized instrument used.	86% of GPCG reported feeling depressed or anxious most of the time. 61% reported smoking more often. 36% reported heavy drinking.
Minkler et al. (1992)	≥12 years 66%	Not reported	23.9%	No	Blackburn Affective Balance Scale	71.8% of GPCG reported feeling depressed.46.5% reported feeling lonely.
Kelley (1993)	≥12 years 97.6%	Not reported: 87.8% of sample reported social status as semi-skilled/skilled worker or semi-professional/ professional	65.9%	Yes	General Severity Index (GSI) of Symptom Checklist-90-R (SCL-90-R)	44% of GPCG reported GSI scores in clinical psychological distress range. Social isolation and role restriction were only two variables that had statistically significant relationship to psychological distress. Statistical model accounted for 46% of variance in GSI scores.
Dowdell (1995)	≥12 years 39%	Not reported	48%	No	Self Report Response on standardized question	A higher level of caregiver burden was related to higher levels of reported "stress."
Musil (1998)	Mean 12.5 years	26% of sample reported < 1000/mo	31.1%	No	Center for Epidemiological Studies-Depression (CES-D) Anxiety Sub-scale of SCL-90-R Parenting Stress Index (PSI)	41% of GPCG reported CES-D scores in clinical depression range. Statistically significant difference in group means on parenting stress but not CES-D scores.
Hayslip et al. (1998)	Mean Years: 13.5 12.67 11.64	% ≥ 51K+/yr 57% 18% 14%	85% 74% 76%	Yes	Psychosocial Satisfaction (criterion variable derived through factor analysis of items extracted from multiple scales)	Statistically significant differences between three groups indicating levels of psychosocial satisfaction among GP groups in following order: High-problem child<low problem child<no caregiving responsibilities
Emick & Hayslip (1999)	Mean Years 16.0 14.1 12.4	Modal range 40-60K/yr 30-40K/yr 20-40K/yr	74.0% 91.3% 85.7%	Yes	CES-D PSI	Statistically significant difference between custodial groups on role strain as follows: Low-level GC< High-level grandchild GC. No statistically significant difference in CES-D scores between any of groups.

Table 2.2, Continued

Study	Educ[3]	Household Income	Percent Married	Multivariate Statistical Analysis Conducted	Standardized Measure of Emotional Well Being	Major Findings
Force et al. (2000)	≥12 years 67% ≥12 years 74%	Not reported	61% 46%	No	CES-D Sense of Mastery	44.6% of GPCG reported CES-D scores in clinical depression range. However, no significant difference reported between groups on CES-D scores. No statistical difference in mastery score. Although both groups had relatively low levels of mastery.
Burnette (1999)	≥12 years 25%	81% at or below poverty level	20%	Yes	Geriatric Depression Scale (GDS)	47% of GPCG were at least mildly depressed. Higher GDS scores were significantly predicted associated with lower age, lower self-rated health, more life stressors, lower informal support, and caring for a special needs child. Seven independent variables entered into model accounted for 53% of variance in GDS scores.
Giarrusso et al. (1996)	4.8[4] 4.17 4.23	Mean 37,878/yr 32,710/yr 32,403/yr	100%[5] 89% 81%	Yes	CES-D	No statistically significant difference in magnitude or directions in CES-D change scores between across groups.
Minkler et al. (1997) Fuller-Thomson et al. (1997)[6]	≥12 years 73% ≥12 years 77.4%	Mean: 37,083/yr 40,834/yr	62.4% 72.2%	Yes	CES-D	25.1% of GPCG had CES-D scores in clinical depression range compared to 14.5% of non-GPCG. Higher levels of CES-D scores were significantly predicted by recently assuming the caregiver role, younger age, non-married, poorer health, female status, lower levels of income, and baseline CES-D scores. Nine independent variables entered into statistical model accounted for 25.7% of variance in CES-D scores.
Strawbridge et al. (1997)	≥12 years 76.2% ≥12 years 90.1% ≥12 years 92.3% ≥12 years 86.2%	% Reported Problems[7] 40.5 13.6 25.4 18.0	69.1%* 100% 66.2% 73.8%	Yes	Mental health: Standardized questions reflecting depressive symptoms from DSM-III & another standardized scale.	GPCG were significantly more likely to have depressive symptoms in 1994 & 1974 relative to comparison groups.
Kelley et al. (2000)	≥12 years 53.5%	GP receives TANF: 16.7%[8]	15.7%	Yes	GSI of Brief Symptom Inventory	28.4% of GPCG had clinically significant GSI scores. Higher levels of CES-D scores were significantly predicted by lower GP social support, family resources, and physical health. Seven independent variables entered into statistical model accounted for 41% of variance in GSI scores.

Table 2.2, Continued

Study	Educ[3]	Household Income	Percent Married	Multivariate Statistical Analysis Conducted	Standardized Measure of Emotional Well Being	Major Findings
Sands et al. (2000)	≥12 years 69%	18% of sample reported ≥ 30,000/yr	38%	Yes	Psychological Anxiety Scale	A statistically higher level of psychological distress was predicted by lower age, higher level of medical/psychological problems, and family cohesion. Thirteen independent variables entered into regression model accounted for 35% of variance in anxiety.
Pruchno & McKenney (2002)	Mean: 13.4 years	Mean: 10,909/yr (per capita)	57.2%	Yes	CES-D & Negative Affect Scale	Path analysis revealed that lower levels of GM health and caregiver burden lead to higher negative affect and lower positive affect. Higher levels of GC behavior problem significantly lead to higher levels of negative affect.

NOTE: GPCG: Grandparent caregiver, GP = Grandparent, and GC = Grandchild.
1:Data are linked to comparison groups referenced in Table 2a, when applicable.
2: Szinovacz et al. (1999) study is omitted, as aggregate demographic data reported in study would not be meaningfully comparable across studies.
3: Several studies did not report data on distribution of education levels, only means or modal ranges.
4: EDUC: Measured with ordinal level scale (1) 8th grade or less – (8) PhD, MD, JD. Level (3) is a High School diploma
5: Reported in study as "married or partnered."
6. Both studies used same data.
7. Not a child TANF grant
8. Percentage of families that reported financial problems.

AN ANALYSIS, SYNTHESIS, & CRITIQUE OF EMPIRICAL STUDIES OF THE EMOTIONAL WELL BEING OF GRANDPARENTS RAISING GRANDCHILDREN

An Analysis of Empirical Studies

Early Studies on Grandparent Well Being

In a seminal study on the well being of grandparents raising grandchildren, Burton (1992) reported findings from two separate qualitative studies conducted in the late 1980s using small samples of grand/great-grandparents (grandparents) raising grand/great-grandchildren whose parents were addicted to drugs. These surrogate parents lived in urban communities in the northwest and northeast U.S. within disadvantaged neighborhoods characterized by high proportions of single-parent families, low

household income, and high rates of crime. Burton reported the results of her study based on a pooled convenience sample size of 60 grandparents, as there was minimal variation in key findings across the two sites.

Eighty-six percent of the grandparent caregivers in Burton's study reported feeling "depressed or anxious" most of the time, smoking more often (61%), heavy drinking (36%), and substantive medical problems such as arthritis and/or diabetes (35%). Only 3% of the grandparents in this sample reported receiving support from extended family members and expressed difficulties in balancing the demands of caregiving and employment. Some grandparents said they had little time for themselves, lacked the "freedom" to engage in personally fulfilling activities, and did not think they would be raising children at "this time in my life." However, several grandparents in Burton's study described raising their grandchildren in positive terms and described their experience as a " reason for living" and "Lord's blessing."

Based on in-depth interviews with grandparents, Burton reported that these caregivers endured multiple sources of individual, family, and contextual level stressors. For example, while caring for their grandchildren negatively impacted economic and psychosocial coping resources for many grandparents in this study, stressors also emerged from interacting with the parents of their grandchildren and other family members (e.g., frail elderly kin), maintaining employment obligations, and other routine commitments. Burton reported that 93% of the grandparents expressed fear related to characteristics of their neighborhood (drive-by shootings, high rates of automobile traffic,

and robberies). Burton referred to these characteristics of the neighborhood as "contextual level" stressors that negatively impacted grandparent well being.

In another qualitative, Minkler, Roe, and Price (1992) interviewed 71 grandmothers/aunts (pooled as "grandparents") in the early 1990s that were the primary caregivers of grandchildren in Oakland, California. Each grandparent in the study was raising her grandchild because of the parent's involvement with crack-cocaine. Seventy-two percent of the grandparent caregivers lived in zip code areas in which 40% of the residents had household incomes below $15,000. Sixty-nine percent of the grandparents reported the household income was not sufficient to meet the family needs.

Minkler et al. reported that 53.3% of the grandparents rated their physical health as "excellent" or "good." However, many grandparents were in pain at the time of the interview (43%) and reported stiffness and swelling (50.7%), back or stomach pain (49.3%), and heart conditions (25.4%). In addition, 33% of the grandparents reported feeling "somewhat worse" or in "worse physical health" since assuming a caregiver role. When asked to rate their emotional health status, 56.4% reported "excellent" or "good;" however, utilizing a modified version of Blackburn's Affective Balance Scale (Moriwaki, 1974), these grandparent caregivers reported feeling "depressed" (71.8%), "couldn't get going" (70.4%), "need a break or I'll go crazy" (57.7%), and feeling "lonely" (46.5%).

Minkler et al. (1992) interpreted the mixed results to suggest that these grandparents minimized their physical and emotional conditions. The qualitative data collected from interviews suggested that grandparents expressed a strong sense of familial responsibility for their grandchildren and the importance of preventing the

children from entering foster care. These findings are consistent with studies from the caregiver burden literature as Wright et al. (1993) report that caregivers of aging parents and disabled spouses tend to minimize the importance of their own well being and seek medical attention only when it coincides with health care appointments scheduled for whom they are caring.

A Focus on Identifying Predictors of Psychological Distress

Demands on Caregiver

Kelley (1993) was among the first researchers to use standardized instruments to measure the emotional well being of grandparents raising grandchildren. She conceptually distinguished between the experience of "parenting stress" and "psychological distress." She measured parenting stress with the Parenting Stress Index (PSI) (Abidin, 1990) and psychological distress with the General Severity Index (GSI) of the Symptom Checklist-90-R (Derogatis, 1983). Kelley reported that 44% of the grandparents had GSI scores at or greater than the 90^{th} percentile (i.e., clinical range of distress) and statistically significant higher levels of psychological distress and parenting stress relative to GSI and PSI normative groups. A statistically significant zero-order correlation was reported between the increasing age of grandchildren and higher levels of grandparent parenting stress although the relationship between the grandchild's age and grandparent GSI scores did not reach statistical significance. In addition, statistically insignificant zero-order correlations were reported between grandparent age and both psychological distress and total parenting stress index scores.

A step-wise multivariate regression analysis also revealed a statistically significant relationship between higher levels of social isolation and role restriction among grandparent caregivers and increasing GSI scores among these surrogate parents. Kelley reported that the latter two independent variables explained 46% of the total variance in the GSI scores among grandparents raising grandchildren in a multivariate regression model. Unfortunately, Kelley does not describe whether variables that demonstrated a zero-order statistically significant relationship with GSI scores were entered into the multivariate regression model.

Dowdell (1995) used the Caregiver Reactions Assessment (Given et al., 1992) to measure "caregiver burden" (i.e., perceived impact of caregiving on the caregivers perceived self-esteem, family support, finances, schedule, and heath) among grandparents raising grandchildren. A statistically significant relationship emerged between higher levels of self-reported stress and greater perceived caregiver burden among these grandparents. Unmarried grandmothers reported statistically significant poorer levels of perceived health and lower levels of family support relative to married caregiver grandmothers. Dowdell reported an inverse statistically significant relationship between the number of grandchild medical problems and grandmother's self-esteem. Overall, the relationships reported were zero-order correlations, which limit the conclusions that can be drawn from this study.

Musil (1998) used the Center for Epidemiological Studies-Depression instrument (CES-D) (Radloff, 1977) to compare levels of psychological distress between grandparents with primary versus partial caregiving responsibility for their grandchildren.

Unfortunately, Musil only reported the demographic characteristics of the pooled grandparent sample and not by caregiving group (primary vs. partial) (see Tables 2.1 & 2.2). Of the overall sample of grandparents, 41% had CES-D scores in the clinical depression range. In addition, grandparents' self-reported depression and anxiety mean scores (pooled sample) were significantly higher than the normative group means reported by the CES-D ($p < .001$) and anxiety subscale of the SCL-90 ($p < .001$), respectively. Though Musil reported no statistically significant difference on self-reported depression (CES-D) and anxiety (SCL-90) group mean scores between grandparents with primary versus partial caregiving responsibilities for their grandchildren, grandparents with primary caregiving responsibility for their grandchildren reported statistically significant higher levels of parenting stress (Parenting Stress Index) and lower levels of social support (Duke Social Support Index) relative to partial grandparent caregivers.

A limitation of the Musil study is that, like Dowdell (1995), Musil did not use control variables. In addition, there are no data to suggest the groups are comparable on any well established demographic variables known to be associated with psychological distress (e.g., age, marital status, socioeconomic status, gender, undesirable life events) reported in the literature at the time of this study (Mirowsky & Ross, 1986).

Kelley, Whitley, Sipe, and Yorker (2000) examined whether lower levels of social support, financial resources, and physical health would contribute to statistically significant higher levels of psychological distress (GSI scores) among grandparents raising grandchildren, adjusting for the following family demographic variables: number

of children grandparent was raising, grandparent age, employment status, and children under 5 years of age. Of the grandmothers in the sample, 28.4% reported clinical levels of psychological distress (at or above the 90th percentile of national GSI norms).

Kelley et al. (2000) also used a hierarchical multivariate analysis and entered seven variables in three blocks: demographic control variables (block 1), social support and family resources (block 2), and grandparent physical health (block 3). They reported that each block made a statistically significant contribution to psychological distress, adjusting for the previous group of variables entered into the model. The seven variables (blocks 1-3) entered into the multivariate regression model accounted for 41% of the variance in grandparent GSI scores. More grandchildren in the home, younger grandparents, having a job, younger grandchildren (block 1), lower levels of social support and family resources (block 2) and lower (poorer) levels of physical health (block 3) were related to higher levels of psychological distress. However, only grandparent age, health, and level of resources were statistically significantly associated with higher levels of psychological distress among grandparents raising grandchildren.

Grandchild Behavioral, Emotional, and Medical Problems

Several studies have examined the impact of grandchildren with behavior and medical problems on the psychological well being grandparents raising grandchildren. Hayslip, Shore, Henderson, and Lambert (1998) examined how the level of child problems (medical and/or behavioral) impacted the emotional well being of three grandparent groups (no-little caregiving responsibility, surrogate parent with "high-level" problem child, and surrogate parent with "low-level" problem child). Adjusting for

grandparents' age, health, income, and number of grandchildren, these researchers reported statistically significant differences on a constructed measure of emotional well being (principal component factor score derived an exploratory factor analysis of several measures of psychological distress and life satisfaction) between each grandparent caregiving group. Grandparents with "little or no" grandchild caregiving responsibilities reported the highest (healthiest) levels of emotional well-being and caregiving grandparents with a "high-level" problem child reported the lowest levels.

In a subsequent study, Emick and Hayslip (1999) reported that raising grandchildren with medical or behavioral problems was particularly challenging for grandparents and results in significant levels of role strain among these surrogate parents. Adjusting for grandparent and grandchild age as well as grandparent level of education, Emick and Hayslip reported that grandparents not raising grandchildren (traditional grandparents), those raising grandchildren with "low-levels" of behavioral/medical problems, and grandparents raising grandchildren with "high-level" behavioral/medical problems each had statistically significant different levels of parental role strain, financial strain, and life disruptions. Traditional grandparents reported the lowest levels of parental strain, financial strain, and life disruptions while grandparents raising "high-level" problem grandchildren reported the highest levels on all three variables. However, while grandparents raising "high-level" problem grandchildren reported the lowest levels of social support, the other two grandparent groups did not significantly differ from each other.

Emick and Hayslip did not find statistically significant differences in psychological distress (CES-D scores which measure levels of depressive symptoms) between the three grandparent groups and write that "the pattern of results here also indicates that it is with regard to the stresses and strains of raising the grandchildren, and not aspects of general psychological distress or well being, that are affected negatively by the resumption of the parent role" (p. 51). Interestingly, the CES-D adjusted mean scores across the groups also reveal that each grandparent group had significant levels of clinical depressive symptoms, which was not discussed further as a study finding.

Force, Botsford, Pisano, and Holbert (2000) reported no statistically significant difference in grandparent CES-D or sense of mastery (i.e., a measure of the perception of personal control) group mean scores between grandparents raising a grandchild with and without a developmental disability. However, clinical levels of depression were reported among 39% and 46% of the grandparents raising grandchildren with a developmental disability and without a disability, respectively. In addition, the researchers reported that with respect to their mastery scores "the average scores across the two groups suggest that the grandparents did not see themselves as particularly in control of their caregiving situations " (p. 14). A significant study limitation is failure to make statistical adjustments for demographic variables prior to comparing CES-D group means. For example, 33% the grandparents raising a grandchild without a developmental disability were below 50 years of age compared to 16% of the grandparents raising a grandchild with a developmental disability.

In a study designed to identify predictors of psychological distress using selected questions from the Psychological Anxiety Scale (Veroff, Douvan, & Kulka, 1981) among grandparents raising grandchildren, Sands and Goldberg-Glen (2000) examined the influence of the following independent variables: grandparent age, number of years of caregiving, whether grandparent is employed, race (black/white), grandchild's behavior and psychological/medical problems, grandchild's specific problem, conflict with grandchild's parents, support group membership, community social service utilization, family cohesion, family stability, and open communication in the grandparent's home. The eleven independent variables entered into a multivariate regression model in the order specified above explained 35% of the variance in grandparent anxiety scores but only the following independent variables had a statistically significant ($p<.05$) relationship with higher levels of psychological distress: younger grandparents, grandchildren with a psychological-physical problem, and lower levels of family cohesion in the home.

Burnette (1999) reported that among a convenience sample of 74 grandparents raising grandchildren, 47% were at least mildly depressed based on their scores on the Geriatric Depression Scale (GDS) (Dunn & Sacco, 1989). A multivariate regression analysis revealed a statistically significant relationship between higher levels of depressive mood (higher GDS scores) and lower grandparent age, lower (poorer) levels of self-rated health, more stressful life events, lower levels of informal support, and caring for a child with special needs. Fifty-three percent of the variance in grandparent GDS scores was explained by the seven independent variables entered simultaneously

into the regression model, although poverty level and number of unmet service needs were not statistically significant (Burnette, 1999a). Since 93% of this sample reported incomes under 125% of the federal poverty level, there was little variability in the poverty variable, making it difficult to generalize these findings to grandparents without such high levels of economic hardship.

Pruchno and McKenney (2002) used path analysis to test Bradburn's theory of psychological well being using a sample of grandmothers raising their grandchildren. The measure of negative affect was developed using the CES-D and a related measure developed by Lawton, Kleban, Dean, Rajagopal, & Parmelee (1992). Lawton et al.'s (1992) positive affect scales and a measure of life satisfaction was used to measure the latent construct of positive affect. Of these grandmothers, 21.5% reported CES-D scores at or above the clinical cut-off score, reflecting substantial depressive symptoms. These researchers found statistically significant causal relationships revealing that lower levels of grandmother health and higher levels of caregiver burden lead to lower levels of positive affect and higher levels of negative affect among these surrogate parents. However, only higher levels of grandchild problems (using a measure of hyperactivity and temper from the Achenbach Child Behavior Checklist) lead to statistically significant increasing psychological distress but not lower levels of positive affect among these surrogate parents. Higher levels of caregiver satisfaction lead to higher levels of positive affect but did not substantively impact levels of grandmother negative affect.

Longitudinal Studies

In a secondary analysis of data collected during the University of Southern California Longitudinal Study of Generations between 1984 through 1994, Giarrusso, Feng, Wang, and Silverstein (1996) identified three groups of grandparents, i.e., non-parenting grandparents, co-parenting grandparents, and parenting grandparents from a probability sample of families who were members of a Health Maintenance Organization (HMO) in the Los Angeles, California area. This longitudinal study examined the degree of change in the level of psychological distress (CES-D scores) experienced among grandparents by group across a 3-year period. None of the study participants were caring for grandchildren at the time the baseline CES-D measures were collected, however, baseline measures were not collected at the same time across groups. Thus, the groups are not comparable by time-period in which measurements were collected and no information was given to evaluate comparability of groups by duration of caregiving responsibility. The researchers reported no statistically significant baseline differences across grandparent groups on marital status, education, and household income, although grandparents in both the parenting and co-parenting groups were statistically significantly younger (mean age of 58 and 51, respectively) and in poorer health relative to the non-parenting group (mean age of 62).

Adjusting for health and age, Giarrusso et al. (1996) found no statically significant differences in the amount or direction of change in CES-D scores within each group and relative to the other groups of grandparents across three years. However, qualitative data reported by caregiving grandparents, revealed that "in cases where the

involvement in caregiving for grandchildren was imposed by circumstances, the grandparent's psychological well being declined" (p. 147). In addition, there was a trend among caregiving grandparents to report an increase in psychological distress when caring for older grandchildren (13-18 years of age) at the post-baseline compared to their baseline (no caregiving responsibilities) measurement points. However, the opposite trend was observed among grandparents caring for children between the ages of 5 years and younger.

In a later secondary analysis of data collected during the National Survey of Families and Households (NSFH) between 1987 through 1994, Minkler et al. (1997) examined CES-D scores among a sample of grandparents that had been surrogate parents for less than five years (n=79) and grandparents who had never been a surrogate parent during the survey period (n=2301). The grandparents raising their grandchildren were almost two-times as likely to have clinical levels of depression (25.1% vs. 14.5%) relative to non-caregiving grandparents.

In Minkler et al.'s (1997) longitudinal study, grandparents' CES-D scores were collected at two separate times [1987-1988 (baseline: time 1) and again in 1992-1994 (time 2)]. None of these grandparents were caring for children at baseline. A multivariate regression analysis revealed that statistically significant higher levels of psychological distress at time 2 were associated with the following seven variables: female, assuming a surrogate parent role within the previous 5 years (i.e., since time 1), lower levels of income, younger age, poorer health, unmarried, and higher 1987-1988 CES-D scores (higher levels of depressive symptoms at time 1). Two variables, years of

education and level of social support, were not statistically related to grandparents' psychological distress. The nine independent variables entered into the multivariate regression model explained 25.7% of the variance in 1992-1994 CES-D scores. Since no grandparents were caring for children at base-line, Minkler et al. (1997) reported that their findings supported the contention that becoming a surrogate parent negatively impacts grandparents' emotional well being. However, while the 1987-1988 CES-D scores (time 1) were statistically controlled in the multivariate analysis conducted in this study, grandparents who assumed the role of surrogate parent after the initial CES-D measurement period (time 1) did have statistically significant higher CES-D group mean compared to non-caregiving grandparents at the baseline measurement point.

In a separate analysis using the NSFH data, Minkler et al. (1997) identified a sample of grandparents who reported being a surrogate parent for a grandchild at any time during the 1990s (n = 144, i.e., all grandparents reported raising at least one grandchild), and created a dichotomous "caregiving length of time" variable, i.e., grandparents who had been surrogate parent to the grandchild(ren) for less than 5 years vs. 5 years or more from the 1992-1994 measurement point. Among the caregiving grandparents, 25.9% of the variance in 1992-1994 CES-D scores was significantly ($p < .001$) predicted by the following group of independent variables: caregiving length of time, race, age, education, marital status, health, sex, social integration, non-grandchild dependent children in the home, experiencing the death of a child in the previous 5 years. The relationships of the independent variables (with the exception of the caregiver status variable) and psychological distress were in the same direction as in the previous

analysis. However, only poorer health status and having assumed the surrogate parent role during the previous 5 years (compared to assuming the surrogate parent role 5 or more years before the 1992-1994 measurement period) were statistically significant predictors of higher levels of psychological distress among the sample of caregiving grandparents.

In another secondary analysis of data collected during a longitudinal study of health and mortality among a random sample of adults in Alameda County, California, Strawbridge, Walhagen, Shema, and Kaplan (1997) identified individuals interviewed in 1974 who were caregivers of a grandchild(ren), spouse, or an adult child in 1994. Using self-reported emotional and physical health data collected during interviews in 1974 and 1994, each caregiver group was compared to a non-caregiver group, adjusting for age and education. In 1994 each caregiving group was statistically more likely to have depressive symptoms relative to non-caregivers. However, only the grandparents raising grandchildren group was more likely to be in poorer health compared to non-caregivers in 1994. Comparing the emotional and physical health status measures collected in 1974 across groups, grandparents raising grandchildren in 1994 were statistically significantly more likely to have had depressive symptoms and poor health in 1974 compared to the non-caregiver group. However, the other two groups of caregivers were no more likely than non-caregivers to have had depressive symptoms or poor physical health in 1974. Furthermore, when the spouse and adult child caregiver groups were pooled and compared to grandparents raising grandchildren, the surrogate parents of grandchildren

were statistically significantly more likely to have reported a serious illness, in addition to financial and marital problems in 1974.

In a secondary analysis of the NSFH, using longitudinal data from the same survey period reported by Minkler et al. (1997), Szinovacz, DeViney, and Atkinson (1999) examined the changes in the emotional well being of grandparents by gender across an eight year period under three living conditions: grandchildren moved in, moved out, or stayed in the grandparent's home. In addition, these researchers were interested in how changes in living conditions (grandchild's transition in/out of the home) might effect changes in a grandparent's emotional well being indirectly through life changes (health, employment, income, social support, and social contacts), i.e., life changes caused by assuming the surrogate parent role that, in turn, impact the grandparent's emotional well being.

Adjusting for age, marital status, education, and number of dependent children in the home, Szinovacz et al. reported that grandmothers (but not grandfathers) experienced statistically significant increases in CES-D scores when their grandchild(ren) moved in the home compared to same-gender non-caregivers that did not have grandchildren living in their home during either data collection period. However, when the grandchildren left the home, grandfathers experienced statistically significant increases in CES-D scores although the grandmothers' level of psychological distress did not significantly change. When grandchildren moved into the home and stayed cross the survey period, grandmothers and grandfathers CES-D scores did not change. Assuming the role of surrogate parent (across any living condition, i.e., grandchild moves in/out/stays) did not

indirectly affect psychological distress among grandparents through changes in grandparent work hours, health, or income. However, when their grandchild moved in the home, grandmothers had a statistically significant decrease in church attendance and related socializing that had a small (yet statistically significant) indirect effect on higher levels of psychological distress.

A Synthesis & Critique of Empirical Studies of the Emotional Well Being of Grandparents Raising Grandchildren

Salient themes cut across the research on the emotional well being among grandparents raising grandchildren and will be discussed in three domains: research methodology, findings, and guiding conceptualizations informing the selection of independent variables for study. In general, sampling methodologies could have introduced substantive bias into the research findings and a caregiver burden framework has been used as a guiding, yet limiting paradigm, from which to conceptualize the emotional well being of grandparents raising grandchildren.

Research Methodology

All the studies reviewed used survey methods to collect data from probability and non-probability samples with the explicit purpose of increasing knowledge about factors which contribute to psychological distress among grandparents raising grandchildren. Four studies reported findings from secondary analyses of longitudinal data using probability samples (Giarrusso et al., 1996; Minkler et al., 1997; Strawbridge et al., 1997; Szinovacz et al., 1999); the remaining twelve were cross-sectional used non-probability samples. With the exception of the longitudinal studies, grandparents were recruited

from social service agencies, clinics, support groups, self-selected, and/or were known to professionals, raising the concern of substantive sampling bias. The longitudinal studies identified grandparent caregivers and non-caregivers using probability samples to minimize the type of bias introduced by the recruitment of grandparents from agencies that provide services to individuals and families in need. However, the samples used in the longitudinal studies were not a randomly selected from a population of grandparents per se and raise questions about the external validity of the reported findings.

For example, the grandparents used by Giarrusso et al. (1996) were drawn from a larger sample of predominately White, middle-class families paying membership premiums to an HMO in Los Angeles, California. Minkler et al. (1997) and Szinovacz et al. (1999) used a sample of grandparents identified from a probability sample of households across the U.S., although they could identify only small numbers of grandparents raising grandchildren to utilize in several of the statistical analyses due to missing data and attrition, i.e., n = 79 and n = 19,[2] respectively. In addition, missing data analyses were not reported and it is unclear how grandparents who had missing data on study variables (particularly the dependent variable) were different from cases with complete data.

Across the four comparison groups used by Strawbridge et al. (1997) (i.e., grandparent caregiver, spouse caregiver, adult child caregiver, and non-caregiver), the grandparents raising grandchildren group contained 3-4 times more Black than White caregivers (depending on the specific analysis) compared to the other comparison groups

[2] See p. S382 in Szinovacz et al. (1999).

(with no adjustments made for race in the statistical analyses), which could bias findings and limit external validity. In addition, their survey sample in 1974 and 1994 from Alameda County, California, may not be similar to individuals from other regions of the U.S. who later became (or did not become) caregivers.

The lack of variation in race and ethnicity among grandparent samples is clear across these studies. For example, as Hispanics are the fastest growing and largest ethnic group in the U.S. (Day, 1996; Ramirez & De la Cruz, 2002), it is important to note that the first study to examine Hispanic grandparents who assume the role of surrogate parent for their grandchildren was conducted by Burnette (1999) using a small sample (no Mexican-Americans) of grandparents (n=79) from New York. However, the high mean age and poverty level among grandparent caregivers in this sample introduces bias, it is doubtful that the findings can be generalized to other populations of Hispanics. In addition, as Minkler et al. (1997) and Szinovacz et al.'s (1999) "nationally representative" samples contained few Hispanics, Asians, or Native-Americans grandparent caregivers, these race and ethnic groups were excluded from analyses. The researchers acknowledged these limitations and excluded these groups due to sample size requirements for meaningful multivariate analyses.

With the exception of Burton (1992), all of the studies used standardized instruments to measure variables of interest, with the CES-D the most often used measure of psychological distress (i.e., clinical depression). However, it is unclear whether the standardized norms (or clinical "cut-off scores") from any of the measures used are

appropriate for grandparents raising grandchildren across age, gender, race/ethnicity, and caregiver sub-groups.

Studies reviewed used comparison groups of non-caregiving grandparents (Emick & Hayslip, 1999; Giarrusso et. al., 1996; Hayslip et al., 1998; Minkler et al., 1997; Szinovacz et al., 1999), grandparent partial-caregivers (Giarrusso et. al., 1996; Musil, 1998), non-caregivers, or other groups of caregivers (Strawbridge et al., 1997), and grandparent caregivers with different groups of grandchildren with varying levels of need (Emick & Hayslip, 1999; Force, 2000; Hayslip et al., 1998). The majority of studies used samples comprised of only grandparents raising grandchildren and made no comparison to non-caregivers and/or other groups of caregivers (Burnette, 1999a; Burton, 1992; Dowdell, 1995; Kelley, 1993; Kelley, 2000; Force et al., 2000; Minkler et al., 1992; Pruchno & McKenney, 2002; Sands et al., 2000).

On balance, researchers have measured "psychological distress" rather than a broader continuum of emotional well being. Table 2.2 shows the measures used. It is apparent that the constructs of depression symptoms, parenting stress, "caregiver burden," and anxiety, have been of particular interest. As a whole, researchers have "over-focused" on one end of the continuum of emotional well being. Investigators have overlooked positive affect among grandparents raising grandchildren.

Research Findings: Emerging Themes

Using standardized measures of emotional well being, researchers have reported the following percentages of grandparents raising grandchildren samples with CES-D scores at or above the clinical ranges: 41% (Musil, 1998), 44.6% (Force et al., 2000),

25.1% (Minkler, et al., 1997), and 21.5% (Pruchno & McKenney, 2002). Using the GSI of the SCL-90-R, clinical ranges of psychological distress were reported among 44% (Kelley, 1993) and 28.4% (Kelley, et al., 2000) of their samples of grandparents raising grandchildren. Burnette (1999) reported 47% of the grandparents raising grandchildren in her sample were "at least mildly depressed" using the GDS. However, sampling bias (i.e., use of convenience samples rather than probability samples representative of the larger population of grandparents raising grandchildren) has likely resulted in these high rates of psychological distress.

Minkler et al. (1997), Strawbridge et al. (1997), and Szinovacz et al. (1999) present longitudinal data and report that grandparents raising grandchildren have statistically significant higher levels of psychological distress compared to non-caregiving grandparents and other groups of caregivers. These studies control for the onset of assuming the role of caregiving between the groups and sociodemographic variables known to be related to higher levels of psychological distress. However, one longitudinal (Giarrusso et al., 1996) and two cross-sectional studies (Emick & Hayslip, 1999; Musil, 1998) report no statistically significant difference in CES-D group means between grandparents raising their grandchildren full-time and part-time and/or non-caregiving grandparents.

Emick and Hayslip (1999) argue that grandchildren with high levels of medical and/or behavioral problems present significant challenges to grandparent caregivers and is an important source of significant levels of parenting stress, but not "general psychological distress." However, Kelley (1993) reported that meeting increased

demands of the parental role is related to significantly higher GSI scores among grandparent caregivers. Other studies, using samples of grandparents raising grandchildren, found that surrogate parents raising children with higher levels of behavior and/ or medical problems have statistically significant higher levels of psychological distress as measured by the CES-D (Pruchno & McKenney, 2002), Psychological Anxiety Scale (Sands et al., 2000), and GDS (Burnette, 1999a). Pruchno and McKenny's (2002) path analysis suggests that higher levels of caregiver burden lead to higher levels of psychological distress (measured by the CES-D), although Force et al. (2000) reported no statistically significant difference in CES-D mean scores between grandparents raising a grandchild with or without a developmental disability. In a review of studies of adults caring for aging parents, disabled spouses, or adult children, Wright et al. (1993) found no clear pattern of effects of disruptive behaviors, severity of impairment, and duration of caregiving on caregivers' emotional well being.

In addition to child behavior/medical problems, researchers using multivariate analyses have reported that the following variables are related to statistically significant higher levels of psychological distress among grandparents raising grandchildren: younger grandparent age (Burnette, 1999a; Minkler et al., 1997; Sands et al., 2000), more grandchildren in the household (Kelley et al., 2000), lower self-rated health (Burnett, 1999; Kelley et al., 2000; Minkler et al., 1997, Pruchno & McKenney, 2002; Szinovacz et al., 1999), higher levels of caregiver burden (Dowdell, 1995; Kelley, 1993; Pruchno & McKenney, 2002); lower levels of social support (Burnette, 1999a; Kelley, 1993; Kelley et al., 2000); assuming the caregiver role within the previous 5 years (Minkler et al.,

1997); lower levels of income/resources (Kelley, 2000; Minkler et al., 1997; Szinovacz et al., 1999;) more life stressors (Burnette, 1999a); being female (Minkler, et al., 1997; Szinovacz et al., 1999), non-married (Minkler, et al., 1997), lower levels of family cohesion (Sands et al., 2000), and church attendance and related socializing (Szinovacz, 1999). However, researchers using multivariate analyses have also reported no statistically significant relationship between the following variables and levels of psychological distress: grandparent age (Kelley, 1993); race (Minkler et al., 1997; Sands et al., 2000; Szinovacz et al., 1999), social support (Minkler et al., 1997; Sands et al., 2000), grandchild age (Kelley, 1993; Kelley et al., 2000); years of providing care for grandchild (Sands et al., 2000), education level (Minkler et al., 1997), employment status (Sands et al., 2000), income/resources (Burnette, 1999a; Sands et al., 2000), open communication, use of community resources, or conflict with grandchild's parents (Sands et al., 2000). Thus, research is needed to clarify the variables that result in grandparent caregivers' psychological distress.

Caregiver Burden: A Limiting Paradigm

A salient theme that emerges from the review of the literature on grandparents raising grandchildren is that many researchers have conceptualized the emotional well being of these surrogate parents as a function of caregiver burden. Minkler et al. (1992) were among the first to apply the concept of "caregiver burden" to inform a conceptualization of caregiving effects on the well being of grandparents caring for their grandchildren. Researchers have long known that assuming the caregiver role could negative impact the psychosocial well being of caregivers (Grad & Sainsbury, 1963), but

"caregiver burden" is actually an imprecise term and not unanimously accepted by researchers (Braithwaite, 1992). It is used to describe the experience of "worry, anxiety, frustration, depression, fatigue, poor health, guilt, and resentment, which arise from subjective appraisals and/or outcomes linked to the context of caregiving" (Lawton et al., 1989, p. P62). According to Lawton et al. (1989) "the major elements of most of the research [on caregiver burden] have been the concepts of demands on the caregiver and the corresponding distress that the caregiving process produces in some of those who provide care" (p. P61). The concept of caregiver burden has not typically been used in the context of meeting the expectations of the parent role, which is underscored by the widely referenced definition developed by George and Gwyther (1986) as "the physical, social, psychological, and financial problems that can be experienced by family members caring for impaired older adults" (p. 253).

Though the concept of caregiver burden is rooted in stress and coping theory (Lazarus, 1966; Lazarus & Folkman, 1984; Pearlin, et al. 1990; Yates, Tennstedt, & Chang, 1999), the literature on grandparents raising grandchildren has not clearly drawn upon this theoretical perspective to conceptualize the emotional well being among these surrogate parents (Sands & Goldberg-Glen, 2000). Instead, the caregiver burden model appears to have only served to inform the selection of variables, within a caregiving conceptual domain, for descriptive study. And as a result, the research literature on grandparents raising grandchildren has been critiqued as almost solely descriptive and largely atheoretical (Szinovzcz, 1998a).

The concept of caregiver burden is conceptually relevant to understanding psychological distress among grandparents raising grandchildren, and the studies that have examined independent variables within a caregiving contextual domain have made important contributions to the research literature. However, a synthesis of the research on grandparents raising grandchildren suggests that an array of other factors may influence grandparents' emotional well being that do not necessarily emanate from assuming or maintaining the caregiver role. For example, longitudinal studies reported by Minkler et al. (1997) and Strawbridge et al. (1997) suggest that for some grandparents caring for their grandchildren, psychological distress may be linked to their social status and/or exposure to the perceived quality of longstanding social conditions (Aneshensel, 1992; Kessler, 1997a; Mirowsky & Ross, 1986; Mirowsky & Ross, 2003; Pearlin & Schooler, 1978; Pearlin, Lieberman, Menaghan, & Mullan, 1981; Pearlin, 1989; Wilson, 1987, 1996). This review now turns toward an examination and synthesis of broader social science research literatures aimed at expanding the scope of social conditions relevant to understanding the emotional well being of grandparnts raising grandchildren.

EXPANDING THE SCOPE OF SOCIAL CONDITIONS RELEVANT TO AN UNDERSTANDING OF GRANDPARENT WELL BEING

Socio-demographic factors influence the social positions many grandparents raising grandchildren occupy in society and, as follows, the social conditions in which they live. For example, 43% of this sub-group of grandparents did not graduate from high school, 46% are unmarried, 57% are in the workforce, and 77% are women with the largest majority being middle-aged (Fuller-Thomson, Minkler, & Driver, 1997;

Szinovacz, 1998). Among the 26% of grandparent caregivers who are renters, one-quarter spend more than half of their income on rent and utilities and 28% live in overcrowded conditions (Fuller-Thomson & Minkler, 2003). Furthermore, approximately one out of five grandparents raising grandchildren live below the U.S. federal poverty line (Bryson, 2001; Proctor & Dalaker, 2002), and grandparents who assume the role of surrogate parent are disproportionately of minority status (Szinovacz, 1998b). This demographic portrait suggests that many grandparents raising grandchildren have long occupied social positions placing them at risk for chronic psychological distress. Thus, it is reasonable to consider the possibility that factors which impact the emotional well being of this group of grandparents could be linked to conditions operating in their lives long before assuming the role of surrogate parent for their grandchildren.

Grandparents are a heterogeneous group (Bengtson & Robertson, 1985; Hayslip & Goldberg-Glen, 2000; Szinovacz, 1998) and the stratification of grandparents raising grandchildren in the U.S. merits an examination of the social conditions in which these surrogate parents and their grandchildren are immersed. Burton (1992) reported that 93% of the grandparents in her study expressed emotional distress related to "neighborhood dangers" (drive-by shootings, high rates of automobile traffic, and robberies). Many grandparents raising grandchildren live in inner city neighborhoods, but little is known about their living conditions (Burnette, 1997; Fuller-Thomson & Minkler, 2003). It is, therefore, important to examine how neighborhood conditions might impact the emotional well being of grandparents raising grandchildren. The characteristics of

neighborhoods in which grandparents live may present exposure to longstanding social conditions that do not change upon assuming the role of surrogate parent for a grandchild.

NEIGHBORHOOD CHARACTERISTICS AND EMOTIONAL WELL BEING

Urban Life and Human Functioning

The idea that human functioning can be impacted by characteristics of urban life has roots in the ancient works of classic Greek scholars, including Plato and Aristotle (Sennett, 1969; Wirth, 1938). For example, Plato believed that beyond a certain point, an increasing city population would begin to negatively impact citizen's emotion well being. Aristotle viewed the city not as a "special society," but rather as the "image of society itself" (Sennett, 1969, p. 3). American and European writers concerned with the relationship between social conditions and human functioning have long conceptualized the human condition in the context of urban life (Addams, 1899, 1902; Massey, 1996; Park; 1969; Sennett, 1969; Simmel, 1969; Weber, 1969; Wilson, 1987; Wirth, 1938).

During the Industrial Revolution in Europe and America, city populations grew to sizes never before witnessed in human history, leading several social philosophers to examine the resulting societal transformations and social conditions in terms of "urbanism" and its postulated profound impact on the emotional well being of "urbanites" (Sennett, 1969; Simmel, 1969; Wirth, 1938). Wirth (1938) maintained that through urbanism, a city's population size, density, and heterogeneity organize in a form that leads to the specialization and formalization of institutions, individuals assuming "highly segmental roles," depersonalization, alienation, and a "schizoid" character.

Fisher (1982), however, did not find that urban life resulted in a sense of isolation, alienation, or any of the emotional disturbances described by Wirth. Massey (1996) argued that it was not the city per se, but rather the effect of dense concentrations of poverty that characterized Wirth's (1938) description of Chicago during the Great Depression in the U.S.. Massey writes that "Wirth was the first social scientist to note a connection between the geographic concentration of poverty and the proliferation of socially destructive behavior, although he didn't quite recognize it at the time" (p. 407). According to Massey, spatial concentrations of dense neighborhood poverty result in the break down of social control mechanisms from which emerge violence, crime, family breakdown, and an array of social characteristics that have implications for the well being of people immersed in such environmental conditions.

Inner City Transformations & Social Disorder

Wilson (1987; 1996) has documented macro socio-economic structural transformations in post-industrial America associated with migration patterns of affluent and middle-class families from urban areas to suburbs and corporate decisions to relocate their business operations outside of inner cities. These shifts have resulted in dense concentrations of poor families, unemployment, an increase in single-parent female-headed households, few available and appropriate adults to supervise and serve as role models for children in the neighborhood, and a decrease in the leaders who once functioned as the informal enforcers of traditional social norms within neighborhoods. According to Wilson and others, through time, these neighborhood transformations erode social control mechanisms within the neighborhood, increasing levels of social disorder

which drive high levels of crime and incivility, instill fear and mistrust among neighborhood residents, and social isolation of many residents within inner city neighborhoods across the nation (Massey, 1996; Sampson & Groves, 1989; Sampson, Raudenbush, & Earls, 1997; Wilson, 1987, 1996). However, more recent research suggests that it is not poverty per se that negatively impacts emotional well being, but rather emergent social conditions which characterize many disadvantaged neighborhoods, i.e., neighborhood disorder (Geis & Ross, 1998; Ross, 2000).

Theoretical frameworks have been proposed which conceptualize the neighborhood as a significant influence on psychosocial functioning (Bronfenbrenner, 1979; Germain, 1991; Lewin, 1935). Although few empirical studies have specifically examined the influence of neighborhood characteristics on mental health per se (Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Curtrona et al., 2000; Latkin & Curry, 2003; Mirowsky & Ross, 2003), researchers have reported social disorganization within inner cities neighborhoods (Sampson & Groves, 1989) and the breakdown of social control and the quality of social ties associated with crime, violence, and fear of crime (LaGrange & Ferraro, 1992; Lewis & Maxfield, 1980; Perkins & Taylor, 1996; Sampson, Raudenbush, & Earls, 1997; Skogan, 1990; Taylor & Shumaker, 1990). These descriptions are similar to the contextual "neighborhood dangers" in Burton's (1992) qualitative study of the well being of grandparents raising their grandchildren.

The Concept of Neighborhood Disorder

Skogan (1990) identifies a form of social disorganization within neighborhoods referred to as "neighborhood disorder," and is conceptualized as an indicator of the

degree to which the following qualities characterize a neighborhood: open use and sale of drugs on the street; loud noise (e.g., arguing/fighting neighbors, gunshots, heavy traffic); sexual harassment or other forms of intimidation; graffiti; vandalism; broken street-lights; public drinking and/or gambling by loitering individuals; accumulating trash-filled lots and alleys; deteriorating, abandoned, or poorly maintained buildings; open prostitution; and groups of youth trolling the neighborhood with ill intent. Ross and Mirowsky (1999) define neighborhood disorder as "cues indicating a lack of order and social control in the community. Order is a state of peace, safety, and observance of the law, and social control in an act of maintaining this order" (p. 413). In theory, neighborhood disorder is caused by the erosion of social control mechanisms within the neighborhood (Massey, 1996; Sampson & Groves, 1989; Skogan, 1990; Wilson, 1987). Personal control theory (Mirowsky & Ross, 2003; Zarit, Pearlin, & Schaie; 2003) suggests that chronic and enduring exposure to cues indicating neighborhood disorder can lead to a decrease in the sense of personal control and decrease levels of emotional well being if one feels powerless to change the perceived threatening living conditions in which s/he is daily immersed. However, it is theorized that characteristics of neighborhoods can also foster increasing levels of emotional well being as discussed in Chapter III.

With the exception of Burton (1992), the effect of perceived neighborhood conditions on emotional well being has not been examined among grandparents raising grandchildren, although an emerging number of studies suggest that neighborhood characteristics do affect mental health (Aneshensel & Sucoff, 1996; Cutrona, Russell, Hessling, Brown, & Murry, 2000; Latkin & Curry, 2003; Mirowsky & Ross, 2003;

Stiffman, Hadley-Ives, Elze, Johnson, & Dore, 1999). Together these studies suggest that neighborhoods have emergent properties that effect mental health above and beyond the aggregate of individual socio-demographic characteristics of their residents.

A Review of the Empirical Evidence Linking Neighborhood Conditions & Emotional Well Being

Brooks-Gunn et al. (1993) studied the influence of neighborhood poverty on the developmental outcomes of low birth-weight children and their parents participating in a national clinical intervention program. They reported that when adjustments were made for individual family socio-economic characteristics, higher levels of neighborhood poverty were associated with lower IQ scores, lower high school completion rates, and higher teen-age pregnancy rates. Conversely, the percentage of affluent families in the neighborhood were associated with higher IQ scores, higher school completion rates, and lower out-of-wedlock births among teenagers.

In another study, using a multi-stage probability sample of children (12-17 years of age) from Los Angles, County, Aneshensel and Sucoff (1996) reported that youth who reported higher levels of "ambient hazards" within their neighborhoods (e.g., drive-by shootings, crime, property damage, gangs, drug use and dealing, graffiti, degree of physical dilapidation of buildings) were significantly more likely to have diagnoses of depression, anxiety, conduct disorder, and oppositional defiant disorder compared to adolescents that perceived lower levels of ambient hazards. Adjustments were made for neighborhood stability, adolescent characteristics, family structure, race and socio-economic status composition of neighborhood. Using a non-probability sample of youth

(14-18 years of age), Stiffman et al. (1999) also examined the degree to which perceived neighborhood environment (ratings of neighborhood rates of shootings, prostitution, abandoned buildings, drug dealing, homelessness, and murders) effects adolescent mental health using a structural equation model. Adolescents who perceived their neighborhoods as dangerous, unsafe, and disordered had poorer levels of mental health than youth who did not perceive their neighborhood environment as threatening.

Curtrona et al. (2000) used a non-probability sample of 709 women (mean age 36.8) from Iowa and Georgia to examine the effect of neighborhood economic disadvantaged (percent of families below the poverty line, single mothers, welfare recipients, male unemployment and mean per capita income) and disorder on emotional well being. They developed the Community Dilapidation and Community Deviance Index to measure a construct conceptually similar to neighborhood disorder and asked respondents to rate the degree to which the following characterized their neighborhoods: trash or broken glass on their streets, graffiti, vacant or deserted buildings, drinking in public, selling or using drugs, gang violence, and groups of people hanging out and causing trouble. Using a multi-level analytic model, they found that higher levels of neighborhood disorder were significantly associated with increases in reported psychological distress net of adjusting for individual-level psychosocial (negative life events, relationship quality, perceived physical health, attitudes toward the future, religiosity, and personality characteristics) and demographic variables (age, education, martial status, and an index of socio-economic status). However, having a more positive outlook on life (a measure of optimism and sense of control) and high quality personal

relationships buffered the negative effect of neighborhood disorder on psychological distress, while having high negative affectivity magnified the negative effect of neighborhood disorder on psychological distress. In this study, neighborhood disadvantage was never significantly related to psychological distress.

Ross (2000) used a probability sample of 2,244 of males and females (mean age 42) living in Illinois from the 1995 Survey of Community, Crime, and Health (CCH) to examine whether neighborhood disadvantage (percentage of families below the poverty level and female-headed households in linked census track areas) affects depression levels (CES-D) net of individual disadvantage (race, ethnicity, sex, age, marital and parental status, education, employment status, low household income, and crowded living environment). Higher levels of neighborhood disadvantage were significantly related to increased levels of depression after adjusting for individual disadvantage. Neighborhood disorder (as measured by the Ross-Mirowsky Perceived Neighborhood Disorder Scale), explained most of the effect of neighborhood disadvantage on depression and was significantly related to depression over and above individual and neighborhood disadvantage. No significant interactions were reported between neighborhood disorder and individual-level variables.

In another study, Geis and Ross (1998) used the 1995 Survey of CCH to show that higher levels of neighborhood disorder was significantly associated with higher levels of perceived powerlessness after adjusting for residents' urban status, sociodemographic variables (sex, race, age, education, employment, household income) and percentage of neighborhood poverty. Social ties with neighbors mediated 13.5% of

the effect of neighborhood disorder on perceived powerlessness, although neighborhood disorder remained significantly associated with perceived powerlessness. Of particular interest in Geis and Ross's findings is that neighborhood poverty was not significantly associated with perceived powerlessness or social ties with neighbors when neighborhood disorder was in the multivariate model. Although dense concentrations of high poverty in the neighborhood was significantly associated with neighborhood disorder, the percentage of poverty in a neighborhood did not significantly predict the formation of social ties with neighbors. In sum, these findings suggest that residents of poor neighborhoods do not have less social ties with neighbors than residents of non-poor neighborhoods. Though poor neighborhoods have higher levels of neighborhood disorder compared to non-poor neighborhoods, it is the level of neighborhood disorder and not the poverty level of the neighborhood per se, that affects residents' sense of powerlessness.

Using the 1995 Survey of CCH, Ross and Jang (2000) found that neighborhood disorder had a significant and positive effect on residents' sense of fear and mistrust of other neighbors when individual socio-demographic characteristics were adjusted (sex, race, age, marital and education status, number of children in the home, and household income). However, high levels of informal social ties with neighbors compared to low levels buffered the effect of neighborhood disorder on fear and mistrust. Interestingly, the level of resident participation in formal neighborhood groups had no significant buffering effect.

Also using the 1995 Survey of CCH, Ross, Reynolds, and Geis (2000) found that higher levels of neighborhood disorder were significantly associated with increased fear and powerlessness among neighborhood residents. The interaction of fear and powerlessness had a strong and significant effect on psychological distress among neighborhood residents. In addition, while residential stability (remaining in the home for 5 years or more) significantly decreased residents' psychological distress in low poverty neighborhoods, residential stability had a significant opposite effect on residents' psychological distress in high poverty neighborhoods. These findings suggest that for residents of high poverty neighborhoods, the perception of neighborhood disorder increases their level of psychological distress, especially when they feel afraid and powerless to do anything about changing their living conditions.

Latkin and Curry (2003) reasoned that neighborhood disorder would be a chronic source of stress for neighborhood residents. Using a non-probability sample of 818 adult drug users (mean age 39.2) involved in a substance abuse intervention program in Baltimore, they collected measures of depression (CES-D) at baseline (1997-1999) and post-baseline (nine months later) and a measure conceptually similar to neighborhood disorder using the Perkins and Taylor Block Environmental Inventory, which asks respondents to rate their neighborhoods on level of graffiti, liter, loitering, public drunkenness, vandalism, decaying and abandoned buildings. Other independent variables included gender status, education, age, living in same residence over 3 years, whether the respondent had a main partner, injection of drugs within past six months, church attendance in past week, number in support network, and baseline CES-D measure. The

post-baseline CES-D measure was the dependent variable. Latkin and Curry found that neighborhood disorder was significantly and positively associated depression after adjusting for the independent variables included in the multivariate analysis. In a separate analysis using only respondents who lived in the same location at both data collection points (n=573), the findings did not change. All possible combinations of two-way interactions of social support-related variables (church attendance, number in support network, having a main partner) with neighborhood disorder on depression were tested but none were significant.

Thus, while the extant research literature on the effect of neighborhood characteristics on mental health has only recently emerged, empirical evidence indicates that the perception of cues indicating neighborhood disorder directly effects both residents' emotional and physical well being over and above their individual level socio-demographic characteristics. For those grandparents living in neighborhoods characterized by high levels of neighborhood disorder, it is plausible that the social conditions that increase psychological distress have affected their well being long before they assumed the role of surrogate parent for their grandchildren.

ALCOHOL & OTHER DRUG USE AND EMOTIONAL WELL BEING

Since Burton's (1992) research indicating that caregiving grandparents reported concern about their own "heavy drinking" (36%) and level of smoking tobacco (61%), no study reported in the literature has examined the relationship between AOD use or misuse (e.g., excessive use, abuse, and/or dependence) on the emotional well being among grandparents raising grandchildren. However, relevant empirical studies and theoretical

models do suggest that psychological distress may be linked to AOD use among a sub-group of grandparent caregivers and a new cohort of grandparents entering "grandparenthood."

As an earlier section of this literature review established, grandparents raising grandchildren experience substantive levels of clinical depressive symptoms. A recent national study estimated this rate to be as high as 25% (Minkler et al., 1997). The mental health and AOD use research literatures report a significant relationship between depression and alcohol and drug dependence (Grant, 1995; Kessler, Nelson, McGonagle, Edlund, Frank, & Leaf, 1996; Kessler, Crum, Warner, Nelson, Schulenberg, & Anthony, 1997b) and alcohol and drug disorders (Regier, Farmer, Rae, Locke, Keith, Judd, and Goodwin, 1990). Atkinson and Mirsa (2002) and Murphy (2002) report a significant association between alcohol and drug disorders and comorbid depression among the aging population. According to Grant and Harford (1995), the link between depression and alcohol use disorders that has been established among younger adults continues into older adulthood although the rate of use decreases with age. However, older adults are more likely to misuse prescription drugs and attribute this behavior as a form of coping compared to young adults (Finlayson, 1984; Qualls, 1999).

The AOD use and mental health research literature have established a link between AOD misuse and clinical levels of psychological distress, although the causal direction is unclear (Atkinson, 1999; DiNitto & Webb, 2005; O'Doherty 1991). Miller (1991) reports that depression is a common consequence of alcohol and drug dependence among older adults, Ross (2000) found that heavy drinking significantly predicted higher

levels of depressive symptoms, and Boardman et al. (2001) report that psychological distress significantly ($p < .001$) predicts higher levels of drug use. However, O'Doherty (1991) reports that while drug and alcohol users have higher levels of distress than non-AOD users, the distress appeared to result from, rather than being the cause of, the AOD use.

Greeley and Oei (1999) report that AOD use may be associated with efforts to reduce the experience of distress consistent with a tension reduction model of coping, which has been reported among older adults (NIAA, 2000), although this postulate is not new (Bowman & Jellinek, 1942/1981). A study by Holahan, Moos, Holahan, Cronkite, and Randall (2001) suggests that alcohol misuse may arise among those who use drinking as a form of coping with emotional distress. In theory, experiencing a low level of sense of personal control can be distressing, which could precipitate drinking, particularly among those who drink alcohol to cope. As follows, chronic exposure to conditions that reduce one's sense of control can lead to high levels of AOD use and misuse (see Figure 3.1 in Chapter III).

According to the National Institute on Alcohol Abuse and Alcoholism (NIAAA), alcohol use and misuse (abuse or dependence) is best conceptualized as influenced by biological and an array of psychosocial factors (NIAAA, 2000). Peirce, Frone, Russell, and Cooper (1994) report significant relationships between high levels of financial strain, low levels of social support, and alcohol misuse. Badger (1993) reported a link between the level of physical impairments and self-reported "problem drinking" among older adults, and Seeman and Seeman (1992) reported that higher levels of "powerlessness"

and negative life events are significantly associated with an increase in alcohol use. Financial strain, low levels of social support, negative life events, high levels of psychological distress, poor physical health, and limitations of activities of daily living have all been reported among grandparents raising grandchildren (Burton, 1992; Dowdell, 1995; Fuller-Thomson & Minkler, 2000; Minkler, et al., 1997; Minkler & Fuller-Thomson, 1999; Strawbridge et al., 1997).

Several studies comparing non-grandparent caregivers with non-caregivers suggest no statistically significant differences in alcohol consumption and substance abuse disorders between these groups. In a 1995 mailed survey with randomly selected HMO members (43.6% response rate), Polen and Green (2001) compared caregivers (3.5% of caregivers were grandparents caring for at least one grandchild) to non-caregivers and found no differences in alcohol consumption levels between the groups. In another study, with a representative sample of adults less than 65 years of age from Ontario, Canada, Cochrane, Goering, and Rogers (1997) found that caregivers and non-caregivers did not differ statistically in their rates of substance abuse disorders. Although it is unclear to what degree the samples used by Polen & Green (2001) and Cochrane et al. (1997) can be generalized to the population of grandparents raising grandchildren, these two studies question whether assuming the caregiver role, which has long been known to be associated with high levels of psychological distress (Grad & Sainsbury, 1963; Wright et al., 1993), is linked to problematic AOD use.

The research on grandparents raising grandchildren shows that while many of these surrogate parents experience high levels of psychological distress, the proportion of

this sub-group of grandparents that meet the diagnostic criteria for major depression, AOD abuse and/or dependence, or other affective mental disorders is not clear. Using a dichotomous measure of mental disorders (whether a diagnosis is met or not) as the sole measure of mental health limits an understanding of the emotional well being and quality of life (Mirowsky & Ross, 2002) among grandparents raising grandchildren. This raises methodological considerations for how AOD use is operationally defined and measured and the type of statistical models used to analyze selected AOD variables, which are addressed in this dissertation study.

Though there is virtually no literature on AOD use among grandparents raising grandchildren, on balance, a synthesis of AOD use and mental health research literature provides a rationale for studying the relationship between AOD use and emotional well being among grandparents raising their grandchildren. Drawing on personal control theory (Mirowsky & Ross, 2003; Zarit, Pearlin, & Schaie, 2003), it is theorized that some grandparents living in neighborhoods characterized by increasing levels of disorder will experience decreasing levels of a sense of control (Geis & Ross, 1998), which can influence increasing levels of AOD use followed by decreasing levels of emotional well being, particularly among those who use AOD to cope (Chapter III provides a more comprehensive conceptualization of these theorized relationships).

AOD use among grandparents raising grandchildren appears to be a taboo topic among many researchers, as if shedding light on this topic would cast these surrogate parents in a negative light and promote the "continued prevalence of a bad seed theory of grandparent caregivers" (Minkler, 1999, p. 212). If this bias influences researchers it is

unfortunate as an examination of the plausible relationship between AOD use and emotional well being among grandparents raising grandchildren could produce positive outcomes for these surrogate parents and the children in their care through advancements in public policy and clinical intervention.

SUMMARY

An increasing number of grandparents are assuming the role of surrogate parent for their grandchildren. Only recently has the emotional well being of this sub-group of grandparents received attention from social science researchers. A pattern of empirical findings shows that 1) many grandparents raising grandchildren experience clinical levels of psychological distress, and 2) researchers have focused on poor mental health rather than the broader continuum of emotional well being. Little is known about grandparents raising grandchildren who experience high levels of positive affect. Further study of positive affect could have implications for relieving the pain and suffering reported among grandparents raising grandchildren. In addition, a discernable pattern in the research literature also shows that the emotional well being of grandparents raising grandchildren is conceptualized within the context of caregiving, i.e., caregiver burden. A caregiver burden model has merit, but alone it is a limiting perspective from which to conceptualize the emotional well being of grandparents raising their grandchildren.

This literature review suggests that an array of factors may influence grandparents' emotional well being. Some of these factors may emanate directly from assuming or maintaining the caregiver role. Others may be linked to the social conditions (and perhaps longstanding social conditions) in which many grandparents are immersed.

Empirical studies reviewed indicate that the quality of perceived neighborhood conditions and levels of AOD consumption impact emotional well being. Personal control theory suggests that for some grandparent caregivers, immersion in high-disordered neighborhoods can decrease one's sense of control and negatively impact emotional well being. Furthermore, living in high disordered neighborhoods coupled with low levels of person control can increase AOD consumption among those grandparents who use AOD to cope, which in turn, negatively impacts emotional well being, as this behavioral pattern further reduces one's sense of control.

In sum, no study since Burton's (1992) has considered whether neighborhood conditions and AOD use are associated with the emotional well being of grandparents raising their grandchildren. Since Burton's study, the incidence of grandparents raising grandchildren has continued to increase, but the cause or causes of psychological distress among these surrogate parents remain poorly understood.

CHAPTER III

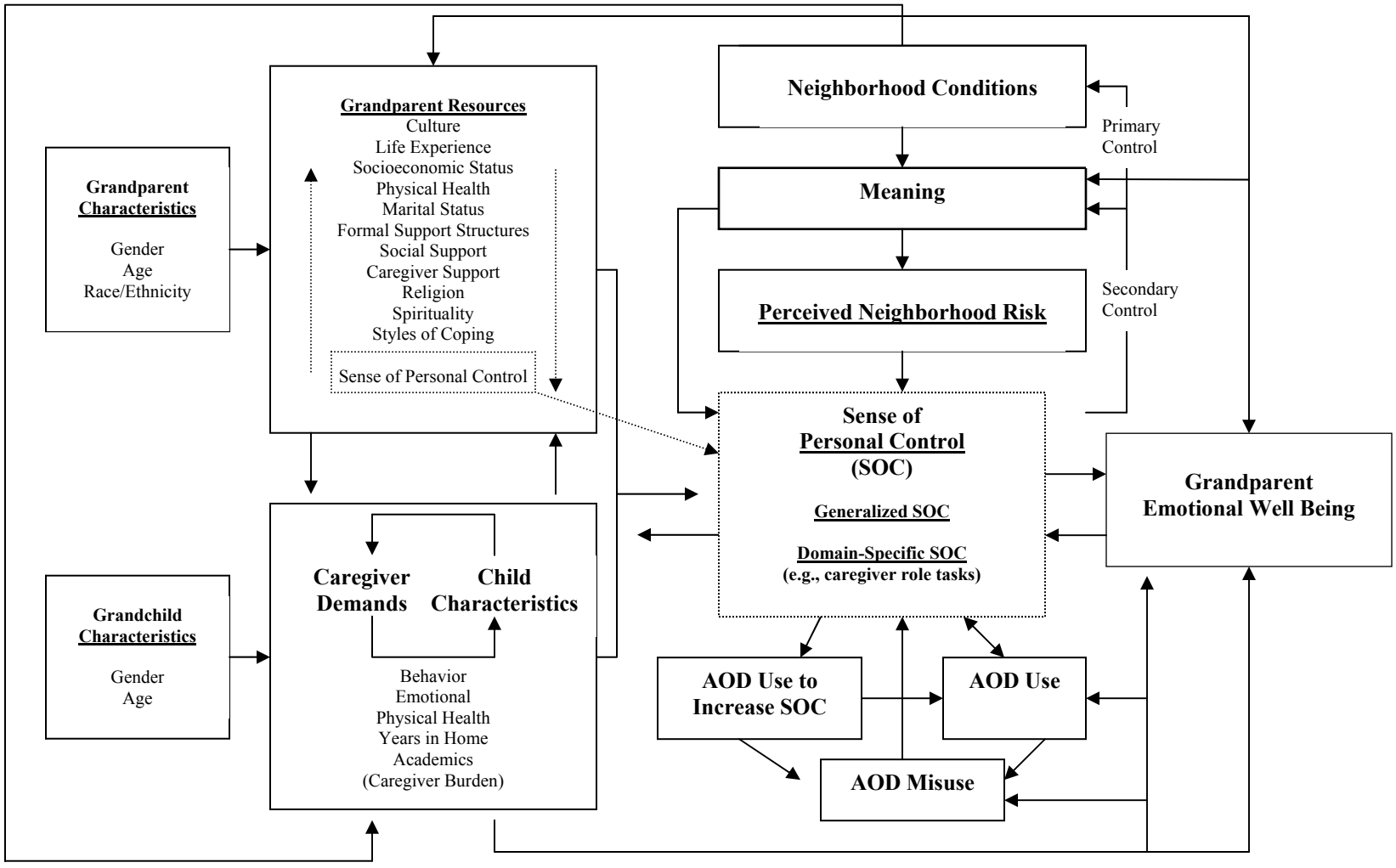
CONCEPTUAL MODEL

Chapter II synthesized an array of social science research literature suggesting that certain conditions (e.g., neighborhood disorder and ambient hazards) and AOD use could constitute unique and substantive factors that negatively affect the emotional well being of grandparents who are rearing their grandchildren. Thus, this chapter has two aims: 1) to explicate how the perception of specific types of neighborhood conditions and AOD use are conceptually linked to emotional well being, and 2) embed these constructs within a conceptual model that expands the theoretical framework used to conceptualize the mental health of grandparents raising grandchildren evident in the extant research literature. The conceptual model shown in Figure 3.1 shows how constructs represented by the key variables in this study fit into a broader conceptualization of emotional well being of grandparents raising grandchildren. The principal aim of this study is not to test the conceptual model shown in Figure 3.1 per se, but to show that characteristics of neighborhood conditions and AOD use can be used as predictors of emotional well being among grandparents raising grandchildren. The conceptual model is the theoretical framework from which neighborhood conditions and AOD use are believed to be linked to grandparents' emotional well being. An empirical test of the conceptual model (Figure 3.1) is the aim of future research. It is used here to conceptually ground the present study.

This model draws on personal control theory (Mirowsky & Ross, 2003; Zarit, Pearlin, & Schaie, 2003) and is presented in two sections. The first section gives an

overview of the conceptual model, followed by an explication of the assumption that the human condition can be conceptualized as an emergent of person-environment transactions. Second, emphasis is placed on the construct of personal control that conceptually links perceived neighborhood risk (a perceived neighborhood characteristic) and AOD use to emotional well being. Throughout these sections grandparent characteristics and resources, grandchild characteristics, and caregiver demands are addressed. Slife and Williams (1995) maintain that assumptions are "ideas about the world that are necessary for the theory to be true" (p. 3). Thus, key theoretical assumptions are discussed as the conceptual model is presented.

Figure 3.1
Conceptual Model of Emotional Well Being
Among Grandparents Raising Grandchildren



OVERVIEW OF CONCEPTUAL MODEL

The emotional well being of grandparents rearing their grandchildren is conceptualized as a psychosocial emergent embedded within a system or context of inter-related person-environment transactions. Like previous person-environment theoretical frameworks of grandparent's emotional well being, the conceptual model integrates the notion that caregiver affect is a function of available resources applied towards his/her ongoing negotiation of the caregiver role and caregiver demands. However, in the conceptual model that guided this study, the *function* through which grandparent affect emerges is theoretically specified and grounded in a psychosocial context that transcends the conceptual boundaries from which grandparent emotional well being is viewed merely as an outcome of negotiating the caregiver role.

The model broadly conceptualizes resources as phenomena internal and external to the grandparent that s/he draws on to negotiate life circumstances, not merely caregiver demands. The systemic properties of the conceptual model propose that caregiver demands can impact grandparent resources, e.g., socio-economic status, social support, physical health, and sense of personal control. In addition, child characteristics and caregiver demands are influenced by neighborhood conditions and have a direct and indirect impact on grandparents' emotional well being. The conceptual model makes no *a priori* assumption as to whether becoming a surrogate parent negatively or positively impacts the grandparents' emotional well being; rather the model emphasizes how psychosocial context (life circumstances) impacts his/her sense of personal control. It is theorized that the degree to which grandparents perceive they are able to achieve a

satisfactory level of personal control substantively influences their emotional well being. Thus, the conceptual model proposes that because increasing levels of perceived neighborhood risk and AOD use can decrease grandparents' sense of personal control, lower levels of emotional well being ensue.

Person-Environment Transactions

The assumption that human emotional well being is an emergent of person-environment transactions is hardly new. It constitutes the theoretical underpinnings of many marco-level social and behavioral science theories. For example, Kurt Lewin formulated the classical equation, *Behavior = f(Person, Environment)* (Lewin, 1935, p. 73). Lawton (1982) has since advanced an ecological model of the aging adult that builds on Lewin (1935) and Murray's (1938) early work. Lawton reformulated Lewin's earlier equation *(B = f (P, E)* into *B = f (P, E, P· E)* (p. 37) to emphasize an assumption that the human condition is a function of the person (*P,* i.e., a complex of personal competencies), environment (*E,* whereby environmental press is grounded in Murray's construct of press), and person-environment (*P· E)* transactions. For Lawton, "*B*" represents "an outwardly observable motoric behavior or an inner affective response" and cognition is conceptualized in this model as a function of a person's set of competencies (Lawton, 1982, p. 43). In Lawton's model, press is conceptualized as a "force" emanating from the environment that facilitates, or acts as a barrier, to the achievement of one's goals.

Systems, ecological, transactional, and social learning theories (Bandura, 1986; Bertalanffy, 1968; Bronfenbrenner, 1979; De Long, 1982; Germain, 1991; Ittelson, 1982) assume the human condition is a function of transactions between interdependent social,

psychological, and physical (to include biological phenomena) processes. For example, Bandura conceptualizes the human condition as an outcome of interdependencies between environmental, behavioral, and person phenomena through a dynamic of "triadic reciprocality." In Bronfenbrenner's elegant conceptualization of multiple layers of nested interdependent systems (micro, meso, exo, and marco) that coexist in dynamic states of ongoing transaction, emotional well being (micro-level) can be considered to be a function of macro-level public policy that is implemented in one's immediate environment (meso-level).

The ongoing challenge for social theorists and researchers guided by theoretical models that assume person-environment transactions is to further specify the mechanisms or processes through which outcomes of interest emerge. Applying this challenge to the conceptual model guiding the current study begs the question of what mechanism or processes might neighborhood conditions, AOD use, or any of the other constructs identified interact to affect the emotional well being of grandparents rearing their grandchild?

THE CONSTRUCT OF PERSONAL CONTROL

The "sense of personal control" is a prominent construct within the conceptual model that guides this study. This construct refers to "a learned, generalized expectation that outcomes are contingent on one's own choices and actions" (Mirowsky & Ross, 2003, p. 174). Skinner (1996) adds, "a sense of control includes a view of the self as competent and efficacious and a view of the world as structured and responsive" (p. 559).

According to Pearlin and Pioli (2003), many researchers across disciplines have discovered that different terms are used to describe a cluster of conceptually similar ideas subsumed under the concept of "sense of personal control." For example, Pearlin and Pioli (2003) and Mirowsky and Ross (2003) maintain that the construct of personal control is conceptually similar to the concepts of locus of control (Rotter, 1966), learned helplessness (Seligman, 1975), self-efficacy (Bandura, 1977), mastery (Pearlin & Schooler, 1978), and Seeman's (1959; 1983) treatment of powerlessness as a form of alienation. Turner and Roszell (1994) go a step further and argue that self-efficacy, mastery, the sense of powerlessness, and locus of control refer to the same underlying construct. For George (2003), the conceptual variations of personal control are a collective of "control beliefs" which are culturally defined and may inform a core value in western societies, particularly the United States. Thus, in the following discussion, concepts such as "powerlessness" and low levels of "mastery," for example, are used as conceptual equivalents to low levels of one's sense of personal control.

Psychosocial Context & Personal Control

An assumption of the conceptual model is that one's sense of personal control is an emergent of 1) cognition and 2) social context. In this vein, personal control is theorized to be an emergent of a psychosocial context (socialization, culture, and a myriad of life experiences). A particular theoretical emphasis is placed on the interconnectedness of the actions and choices taken to achieve one's goals and the perceived responsiveness of the environment. A sense of powerlessness emerges when one perceives that the environment is unresponsive to the actions taken to achieve a

specific outcome. Seeman defines "objective powerlessness" as "the expectancy or probability held by the individual that his own behavior cannot determine the occurrence of the outcomes, or reinforcements, he seeks" (Seeman, 1959, p. 784). The constructs of role overload, alienated labor, structural inconsistency, and dependency speak to the social conditions in which the sense of "objective powerlessness" emerges as a function of a psychosocial context (Mirowsky & Ross, 2003).

The perception of social conditions can also affect one's sense of personal control as delineated by Pearlin and Schooler's (1978) treatment of the concept of mastery. For example, when the intent of one's actions result in successes within a psychosocial context, an increasing level of a sense of personal control emerges. Likewise, an individual or group is "empowered" when social conditions are fostered and made responsive to efforts aimed at targeted goals (Pearlin & Pioli, 2003). Neighborhood watch groups and neighborhood associations can conceivably foster social conditions whereby residents are able to achieve collective and mutually defined goals. In addition, employment conditions that encourage employee creativity, independent judgment, and allow the worker to have a stake in the product s/he produces, can have a positive impact on one's sense of personal control.

Grandparent Resources

The construct of "sense of personal control" is conceptualized as a grandparent resource. In the conceptual model, grandparent resources 1) reciprocally influence each other, 2) evolve throughout the life course, 3) are used to negotiate life circumstances, 4) take a variety of forms (e.g., income, healthcare, education, physical health), and 5) are

unevenly distributed among grandparents in society through means largely contingent upon one's social position. Many resources are differentially linked to gender, age, and race/ethnicity differentially through a system of social stratification (Markides, 2003; Skaff & Gardiner, 2003). Culture, gender, and one's sense of personal control may also influence from whom and to what extent resources (e.g., financial assistance from formal support structures) are offered and accepted during times of need. Thus, grandparent resources are broadly conceptualized and theoretically grounded in a psychosocial context.

While the conceptual model maintains that personal control is shaped through an ongoing process of socialization, culture, and myriad life experiences unique to the individual (i.e., person-environment transactions), personal control reciprocally acts on these forces as well. For example, one's global sense of personal control may influence subsequent socioeconomic status (i.e., education, income, and occupation) that may, in turn, expose the individual to different cultures, support systems, family traditions, spiritual experiences, work environments, and romantic relationships from which emerge an array of life experiences that collectively impact the degree to which one believes that outcomes in life are contingent on one's own actions and choices.

PERSONAL CONTROL AND EMOTIONAL WELL BEING

It cannot be overemphasized that the conceptual model assumes that humans are motivated to achieve at least a satisfactory sense of personal control in their lives and the degree to which they are successful in doing so has implications for their emotional well being. According to Schulz, Wrosch, and Heckhausen (2003), "striving for control is a

human universal, invariant across historical time and diverse cultural settings" (p. 245). This motivation could arise from the sense of personal control as a basic human need (Murray, 1938), fundamental psychological disposition (Pearlin & Pioli, 2003), or perhaps a value that is learned and integrated into the self-concept through a culturally specified normative process of socialization (George, 2003; Skaff & Gardiner, 2003).

Perceived phenomena that are interpreted to facilitate or hinder the attainment of satisfactory levels of personal control are assumed to have implications for one's state of emotional well being. The nature of these phenomena is broadly conceptualized and can take the form of any characteristic of the person, environment, and/or person-environment transactions, although the relevance of these phenomena to one's sense of personal control is assumed to have meaning within a psychosocial context.

In the conceptual model, it is the *meaning* or perception ascribed to phenomena within a psychosocial context that influences the degree to which satisfactory levels of personal control will be hindered or facilitated. For example, an individual may perceive an ongoing lack of transportation as a barrier to the goal of securing employment. In this hypothetical situation, the individual believes that financial constraints are tightly linked to his/her inability to access transportation. If ongoing efforts to generate the resources for transportation are unsuccessful, s/he may begin to believe that any further attempts to affect his/her desired outcome will prove futile. It is therefore hypothesized that one's sense of personal control decreases and a state of negative affect contextually emerges.

However, according to Schulz, Wrosch, & Heckhausen (2003), states of personal control also serve to activate the human motivational system whereby the individual acts

to directly change conditions within his/her environment or aims to exclusively modify the internal meaning of a perceived contextual phenomenon via primary and secondary control processes, respectively. For example, in the transportation hypothetical referenced above, the individual is exerting a primary form of personal control through ongoing efforts to access needed resources. The individual may also increase his/her sense of personal control via secondary control efforts that initiate thoughts such as "keep on trying, don't give up," despite ongoing unsuccessful efforts to achieve an intended outcome.

The conceptual model further specifies that one's sense of personal control can be conceptualized as global and/or domain specific. For example, an unmarried (single) father may experience a high level of personal control as an accountant in his work environment. But he may also experience powerlessness in his role as parent. The accompanying negative affect experienced is rooted in a specific domain role (i.e., primary caregiver).

In this vein, the notion of caregiver burden has relevance to the negative affect experienced by some grandparents rearing their grandchildren and could be linked to an unsatisfactory level of personal control that is grounded in the context of fulfilling role-specific normative tasks and duties of a surrogate parent. For example, a grandparent may have been unexpectedly thrust into the role of surrogate parent and a life-long dream of travel during her/his "golden years" is no longer feasible in the foreseeable future. Negative affect may emerge relative to 1) his/her perceived inability to control the circumstances that have placed him/her into the role of surrogate parent, and 2) feeling

overwhelmed by the multiple tasks required to maintain the primary caregiver role (e.g., perhaps some social supports are needed but not available).

The process through which a sense of personal control and emotional well being emerge is dynamic, assumes person-environment transactions, and is grounded in a psychosocial and cultural context. It is assumed that humans strive to achieve satisfactory levels of personal control within a psychosocial and cultural context and are reciprocally influenced by the perceptions of these outcomes. Thus, from this theoretical framework it is hypothesized that phenomena which are interpreted to be a hindrance to the attainment of satisfactory levels of personal control will result in states of negative affect whereas positive affect emerges when one perceives the environment to be responsive to his/her efforts aimed at targeted outcomes in life. As the conceptual model indicates, an array of resources (e.g., culture) influences the sense of personal control differentially across groups.

Neighborhood Conditions & Emotional Well Being

The conceptual model emphasizes that perception of neighborhood conditions can facilitate or hinder the achievement of satisfactory levels of personal control. The conceptual model for this study reflects only a narrow slice of the universe of conceivable neighborhood conditions. The model puts considerable emphasis on the meaning ascribed to neighborhood characteristics along a continuum of "perceived neighborhood risk." It is theorized that the perception of "neighborhood risk" emerges through an interpretation of specific qualities of neighborhood conditions although "perceived

neighborhood risk" is not the only way to conceptualize or characterize a neighborhood. Perceived neighborhood risk aims to address only a type of neighborhood condition.

Perceived neighborhood risk is conceptually similar to the constructs of ambient hazard (Aneshensel & Sucoff, 1996) and neighborhood disorder (Mirowsky & Ross, 2003; Skogan, 1990). In brief, perceived neighborhood risk is conceptualized as an overarching construct of ascribed meaning relative to characteristics of neighborhood social conditions in which grandparents and their grandchildren are embedded. There are two conceptual dimensions that comprise the construct of perceived neighborhood risk, i.e., "perceived social order" and "perceived safe conditions" in the neighborhood. Perceived neighborhood risk is further operationalized in Chapter IV.

Drawing on Skogan (1990) and Ross and Mirowsky's (1999) conceptualization of neighborhood disorder, perceived neighborhood risk refers to observable characteristics of neighborhood conditions that an individual interprets and indicates the degree to which social order and informal/formal social control mechanisms exist in one's immediate living environment. According to Ross and Mirowsky (1999), "order is a state of peace, safety, and observance of the law, and "control" is an act of maintaining this order (p. 413). In the conceptual model, high levels of perceived neighborhood risk is conceptually similar to perceived high levels of neighborhood disorder.[3]

Examples of neighborhood conditions that are theorized to indicate high levels of perceived neighborhood risk are: open use and sale of drugs on the street; loud noise (e.g., arguing/fighting neighbors, gunshots, heavy traffic); sexual harassment or other

[3] Chapter IV explicates the conceptual reasons why "perceived neighborhood risk" is not called "perceived neighborhood disorder."

forms of intimidation experienced by residents within their neighborhoods; graffiti; vandalism; broken street-lights/signs that are left in a state of disrepair; public intoxication, alcohol consumption and/or gambling by loitering individuals; accumulating trash-filled lots and alleys; deteriorating, abandoned, or poorly maintained buildings; open prostitution; and groups of youth trolling the neighborhood with ill intent (e.g., gang members that engage in criminal activity and promote incivility). In the conceptual model, one's sense of personal control decreases when 1) chronic exposure to environmental cues (i.e., perceived qualities of neighborhood conditions) are interpreted to mean informal/formal mechanisms of social control are no longer in operation within the neighborhood and 2) one is unable to successfully negotiate the inherent threat of social disorder using her/his available resources, i.e., primary and/or secondary efforts to establish a satisfactory level of a sense of personal control. As follows, neighborhood conditions that are interpreted as unresponsive to one's attempts to maintain or achieve satisfactory levels of personal control will lead to states of negative affect. However, it is assumed that the degree to which *specific* environmental cues are interpreted to indicate levels of social order and control characterizes a neighborhood is informed by a psychosocial, cultural, and historical context (George, 2003). Thus, the same neighborhood conditions may have a differential impact on the emotional well being across groups that vary by culture.

Research findings support the contention that social conditions, which decrease the sense of personal control, significantly predict increasing levels of psychological distress (Markus & Herzog, 1992; Rowe & Kahn, 1998; Mirowsky & Ross, 2003; Pearlin

& Schooler, 1978; Pearlin, Lieberman, Menaghan, & Mullan, 1981; Pearlin, 1989). Empirical studies have shown that higher levels of perceived neighborhood disorder are significantly associated with higher levels of powerlessness (Geis & Ross, 1998), fear and mistrust (Ross & Jang, 2000), and psychological distress (Curtona et al., 2000; Mirowsky & Ross, 2003; Ross, 2000).

The research on grandparents raising their grandchildren offers little information about their living environments (Burnette, 1997; Fuller-Thomson, 2003). No assumption is made that unusual rates of crime, disorder, and/or incivility characterize their neighborhoods, as a group. However, it is assumed that the construct of perceived neighborhood risk reveals one dimension of meaning that characterizes how grandparents may experience and interpret social conditions of their neighborhood. An examination of this specific type of neighborhood condition may shed light on why grandparents rearing their grandchildren report high levels of psychological distress.

AOD Use & Emotional Well Being

As discussed in Chapter II, some studies show that individuals who meet the diagnostic criteria for AOD abuse or dependence, compared to those who do not, tend to have higher levels of psychological distress (e.g., depression and anxiety). And while the level of consumption (i.e., AOD *use*) is not the only criterion used to establish a diagnosis of AOD abuse and/or dependence (McNeece & DiNitto, 2005), increasing levels of AOD consumption are associated with higher levels of psychological distress (Boardman, 2001; Liberto, Oslin, & Ruskin, 1996; Ross, 2000). In the conceptual model, one's sense

of personal control is conceptualized as a conduit linking AOD use and AOD misuse to emotional well being.

In their review of AOD use among older adults, Vinton and Wambach (2005) reported that "loneliness, alienation, and boredom have been proposed as variables that are related to abuse of alcohol by the elderly" (p. 395). Alienation is conceptually similar to the concept of personal control (Seeman, 1959). Although the research literature indicates that older adults' sense of control does not significantly differ from younger adults (see George, 2000), several studies have shown that one's sense of personal control decreases with age, particularly after age 50 (Mirowsky, 1995; Schieman & Turner, 1998; Wolinsky & Stump, 1996), and higher levels of powerlessness have been shown to be a predictor of alcohol use, abuse, and alcohol-related problems (Seeman & Anderson, 1983; Seeman, Seeman, & Budros, 1988; Seeman & Seeman, 1992).

Social learning and tension-reduction theories (Greeley & Oei, 1999) have long suggested that AOD use may temporarily buffer the emotional discomfort of negative affect (Bowman & Jellinek, 1942/1981). However, in the conceptual model, the negative affect experienced by some grandparents may derive from the perception that one is not able to achieve a satisfactory level of personal control in their lives. Thus, for some grandparents, AOD use can be conceptualized as an attempt to achieve or maintain a satisfactory level of personal control, albeit a maladaptive one. According to Norman Denzin (1987), in cases of problem drinking behavior, "the act of drinking symbolizes control ..." (p. 43).

There is evidence that AOD use as a primary means to reduce negative affect (i.e., AOD use to cope) can lead to AOD misuse (Holahan et al., 2001). Considerable evidence indicates that AOD misuse has a negative impact on multiple biological systems and psychosocial functioning (DSM IV, 1994; McNeece & DiNitto, 2005; Smith, 1997). Thus, it is plausible that increasing levels of AOD use, and particularly AOD misuse, can lead to substantive decreases in psychosocial functioning (e.g., inability to perform important role tasks) and, as a result, be the product of and precursor to a vicious downward spiral of decreasing levels of perceived personal control. The conceptual model postulates that for some grandparents, AOD misuse can produce an environment that becomes increasingly unresponsive to one's actions and choices aimed at achieving desired outcomes across an array of social domains, which leads to increasing states of negative affect.

SUMMARY

The emotional well being of grandparents rearing their grandchildren is conceptualized as a psychosocial emergent embedded within a system of person-environment transactions. A key postulate of the conceptual model is that the degree to which grandparents perceive they are able to achieve a satisfactory level of personal control substantively influences their emotional well being. Like emotional well being, sense of personal control is conceptualized as an emergent within system of grandparent resources and is shaped by forces that include socialization, culture, and the cumulative experiences that span one's life trajectory. Thus, the proposed conceptual model includes no assumption about whether the role of surrogate parent negatively or positively impacts

grandparents' emotional well being. Rather, the model emphasizes how the psychosocial context of life circumstances may impact sense of personal control.

The conceptual model explicates how a specific type of neighborhood condition (perceived neighborhood risk) and AOD misuse are conceptually linked to the emotional well being of grandparents rearing their grandchildren. The conceptual model postulates that high levels of perceived neighborhood risk could reduce the level of personal control experienced by grandparents living in social conditions interpreted as threatening amid available resources. Likewise, increasing levels of AOD use and AOD misuse could negatively impact psychosocial functioning and catalyze environmental conditions that become progressively unresponsive to one's efforts to achieve his/her goals. The conceptual model proposed that AOD use and misuse could become the product of and precursor to a vicious downward spiral of decreasing levels of perceived personal control. Thus, the conceptual model postulates that life circumstances (i.e., psychosocial context) which reduce one's sense of personal control, whether they arise from perceived neighborhood conditions or AOD use, will increase states of negative affect among grandparents rearing their grandchildren. And likewise, perceived conditions that facilitate higher levels of personal control will increase states of positive affect.

Key assumptions in the conceptual model are that one's sense of control is a function of learning and is contextually malleable. Thus, the conceptualization of emotional well being among grandparents rearing their grandchildren presented in this chapter points to multiple processes through which the mental health of this subgroup of surrogate parents can be strengthened through micro and macro interventions.

CHAPTER IV

METHODOLOGY

The research methodology is presented in four sections. Section I describes the National Survey of Child and Adolescent Well Being (NSCAW) and sampling design. Section II delineates the method in which grandparents raising grandchildren were selected into the study sample. Section III specifies the measurement properties of each study variable. The data analysis plan used to answer each research question is presented in Section IV.

THE NATIONAL SURVEY OF CHILD AND ADOLESCENT WELL BEING

This study is a secondary analysis of cross-sectional data collected from Wave 1 of the NSCAW. The NSCAW was funded and sponsored by the U.S. Department of Health and Human Services, Administration on Children, Youth, and Families and authorized by The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PL 104-193). The NSCAW is "the first national study of child welfare to collect data from children and families (face-to-face), and the first to relate child and family well being to family characteristics, experience with the child welfare system, community environment, and other factors" (Dowd, Kinsey, Wheeless, Thissen, Richardson, Mierzwa, & Biemer, 2003, p. 1). According to Waldfogel (2000), previous national studies of children and families within the child welfare system have been based on case record reviews and/or interviews with service providers but have not surveyed children and families directly.

The NSCAW is comprised of two nationally representative samples of children, ages birth to fourteen: (1) Child Protective Service (CPS) (n=5501) sample and (2) the Long-Term Foster Care (LTFC) (n=727) sample. While 5501 children were randomly selected into the CPS sample, for example, the NSCAW collected information on each child's family (e.g., her/his primary caregiver) as well. A description of the NSCAW sampling methodology will clarify that a sampling frame of children (i.e., see second-stage stratification of sample), not families per se, was used to select the probability sample.

The CPS group is a probability sample of all children in the U.S. who were the subject of an abuse and/or neglect (maltreatment)[4] assessment/investigation received by a state child welfare agency during October 1999 – December 2000. The LTFC probability sample is comprised of children who have been in out-of-home care for at least twelve months prior to the onset of the NSCAW reference period (i.e., October 1999). According to the literature on the NSCAW (Dowd et al., 2003), the CPS and LTFC samples were selected from separate sampling frames and represent two different populations of children (and their families). Merging data from the separate CPS and LTFC samples and subsequently applying the national weights is not an appropriate analysis procedure (particularly in a multivariate analysis). Thus, in this dissertation study, only the CPS sample was examined.

All NSCAW data collected from the CPS sample of children and their families at Wave 1 occurred during November 1999 through April 2001. NSCAW researchers made

[4] The term "maltreatment" is used interchangeably with child abuse and/or neglect in the study. Further specificity is made when necessary.

initial contact and surveyed children and their adult primary caregivers 2-6 months after the child welfare assessment/investigation of maltreatment concerning the sampled child (received by the child welfare agencies during October 1999 – December 2000) was officially closed.

Human Subjects Protection

A NSCAW Institutional Review Board (IRB) was established at the Research Triangle Institute (RTI) to review all aspects of the NSCAW design and procedures to ensure the protection of NSCAW participants. As the NSCAW research project was comprised of a network of participating academic institutions and researchers, IRBs from the following institutions separately reviewed and approved the NSCAW research plan: RTI, University of North Carolina at Chapel Hill, University of California at Berkeley, Duke University, San Diego Children's Hospital, and the University of Pittsburgh Medical Center (Dowd et al., 2003). The following is an overview of procedures used to make contact and survey NSCAW participants.

A letter from the NSCAW research team was mailed to parents and their children who were identified for interviews, which explained the purpose of the study and the voluntary nature of their participation. Incentives were offered to parents ($50) and a gift certificate of $10-20 was offered for their child (based on the child's age). The NSCAW protocol required that a member of the research team (and not a state child welfare agency representative) make first contact with the family. State child welfare agencies that could not comply with this requirement of the study's protocol, citing state-specific confidentiality laws, were not included in the study. As a result, four states were

excluded from the NSCAW study.[5] Allowing child welfare state agency staff to introduce the study to children and their families could introduce a source of bias in the responses collected during the NSCAW. Some bias may also result from excluding the four states, but uniformity and consistency was established in the NSCAW study design by adhering to the protocol for initial contact with all potential respondents. It is estimated that the states excluded from the NSCAW comprise 5.2% of the CPS population and the resulting bias in making national inferences is minimal (Dr. Elliot Smith, NDACAN, Cornell University, personal communication, February, 11, 2005; Dowd et al., 2003).

Information about the study was also provided to the respondent verbally and in the form of brochures provided by the NSCAW research team, which explained confidentiality, informed consent, and respondents' rights. The NSCAW protocol called for each respondent to sign an informed consent form which contained detailed information about the research, selection of children, purpose of the interview, types of questions that would be asked of the respondent and/or their child, voluntary participation, risks, benefits, future contacts, confidentiality, and a toll free number with contact information to call if any questions arose.

The interviews took place in the family home or at a convenient location for the respondent. Information provided by the respondents, or their identities, was not shared with state child welfare agency staff. According to the NSCAW literature, there were no physical risks to respondents who participated in the interviews. However, it is possible

[5] The identity of these four states has not been made available to the public or researchers, per the NSCAW Research Team.

that some respondents may have experienced uncomfortable emotions (e.g., sadness) during the interview. The NSCAW made clear that if the life or health of a child was in danger the appropriate county or state agency would be notified. NSCAW respondents were informed that the information they provided would help increase an understanding of the needs of children and families and availability of relevant services.

NSCAW Sampling Design

The NSCAW used a two-stage stratified sampling design to select a national probability sample of children ages 0-14 years (n=5501) who were the subject of a child maltreatment assessment/investigation report received by state child welfare agencies during October 1999 – December 2000, i.e., the CPS sample. During the first stage of the sampling design, all states in the U.S. were divided into nine strata. Eight states with the highest CPS caseloads in the U.S. each represent a unique stratum. The remaining thirty-eight states and the District of Columbia make up the ninth stratum.

The primary sampling unit (PSU) in the NSCAW is a "geographic area that encompasses the population served by a single CPS agency" (Dowd et al., 2003, p. 13), which generally corresponds to a county. Independent samples of PSUs were selected using probability-proportionate-to-size (PPS) and systematic sampling strategies from each of the 9 strata. In this manner, a total of 100 PSUs were selected (Dowd et al., 2003). However, because 8 PSUs were from states that could not comply with the NSCAW "first contact" protocol (described above), 92 eligible PSUs were selected for use in the study (Dowd et al., 2003).

During the second stage of stratification, eight strata were created within each of the ninety-two PSUs and identified as "sampling domains" (Table 4.1). Simple random sampling was used to select children from the eight sampling domains within each of the ninety-two PSUs. An equal number of children were selected from each PSU (regardless of size) to balance the impact of the previous PPS sampling of PSUs (resulting in a higher likelihood that PSUs with the largest child welfare caseloads are selected) and thereby ensure that each child had an approximately equal chance of being selected within sampling strata.

The NSCAW sampling design used oversampling methods to ensure the following three groups of children were represented in the national sample, i.e., children 1) less than one year of age, 2) receiving child welfare services, and 3) allegedly sexually abused. Oversampling was used as the number of these children is disproportionately low relative to children over one year of age, not receiving child welfare services, and those who were not allegedly sexually abused as reported to child welfare systems across the U.S.. Simple random sampling would likely not have yielded an adequate number of children within these groups. To estimate population parameters, the NSCAW General Use Data Wave 1 sampling statistical weights are included in the dataset and were used in this study. A more thorough treatment of the NSCAW design effect and sampling weights is included in the data analysis plan later in this chapter.

A caveat must be added to qualify the extent to which the CPS probability sample is "nationally representative." As noted, four states were excluded from the NSCAW. These state child welfare agencies cited state law that precluded NSCAW research staff

from making initial contact with families to introduce the study. Thus, the children reflected in the CPS sample are representative of "all children in the U.S. who are subjects of child abuse or neglect investigations (or assessments) conducted by CPS and who live in states not requiring agency first contact" (Dowd et. al., 2000, p. 16).

Table 4.1
Second-Stage Stratification: Sampling Domains

Domain 1: Infants (age < 1 year old) who are not receiving CPS agency funded services.
Domain 2: Children age 1 to 14 years old who are not receiving CPS agency funded services.
Domain 3: Infants (age < 1 year old) who are receiving CPS agency funded services and are not in out of home care.
Domain 4: Children age 1 to 14 years old who are receiving CPS agency funded services and are not in out of home care and are investigated for allegations of sexual abuse.
Domain 5: Children age 1 to 14 years old who are receiving CPS agency funded services and are not in out of home care and are investigated for allegations of other abuse or neglect.
Domain 6: Infants (age < 1 year old) who are receiving CPS agency funded services and are in out of home care.
Domain 7: Children age 1 to 14 years old who are receiving CPS agency funded services and are in out of home care and are investigated for allegations of sexual abuse.
Domain 8: Children age 1 to 14 years old who are receiving CPS agency funded services, are in out of home care, and are investigated for allegations of other abuse or neglect.

(Dowd et. al., 2003, p. 20)

The NSCAW General Use Data Set

The NSCAW General Use Data Set was acquired from the National Data Archive on Child Abuse and Neglect (NDACAN) housed at Cornell University. As a condition of releasing the NSCAW General Use Data Set, researchers must submit documentation certifying 1) an Institutional Review Board (IRB) has approved the planned secondary analysis and 2) adherence to a licensing agreement (Dowd et al., 2003). This researcher obtained IRB approval and his supervising professor agreed to the licensing requirements. This researcher received the NSCAW General Use Data Set (NDACAN Dataset # 103) in the form of an electronic compact disc in October 2003.

In addition to the NSCAW General Use Data Set, the NDACAN offers researchers two "restricted release" versions of the NSCAW, which contain a more comprehensive set of data collected during the study. For example, many ratio and interval-level data collected in the NSCAW (e.g., caregiver age and child behavior rating scores) have been recoded into ordinal or nominal scales of measurement within the NSCAW General Use Data Set. Thus, it is not possible, for example, to identify grandparent caregiver age beyond the following age four groups: 26-35; 36-45; 46-55, & "greater than 55." In addition, research that requires data on case-specific neighborhood socio-economic characteristics (e.g., poverty rates by zip code or census tract) is not possible using the General Use Data Set as census tract/zip code and other case-specific geographic identifiers have been deleted. The NSCAW User's Manual reports that these modifications are necessary to ensure respondent confidentiality, comply with federal guidelines, and apparent administrative decisions made as to what data to include in the General Use data set versus the more restricted versions.

Acquiring the restricted release data requires substantial more resources from researchers "to cover the cost of visits to the researcher's site to monitor compliance with the data protection plan" (Dowd, 2003, p. 13). This precluded the researcher from obtaining these data sets. When relevant to the methodology and analysis described within this study, the limitations of the General Use Data Set are referenced.

SELECTION OF STUDY SAMPLE:

GRANDPARENTS RAISING GRANDCHILDREN

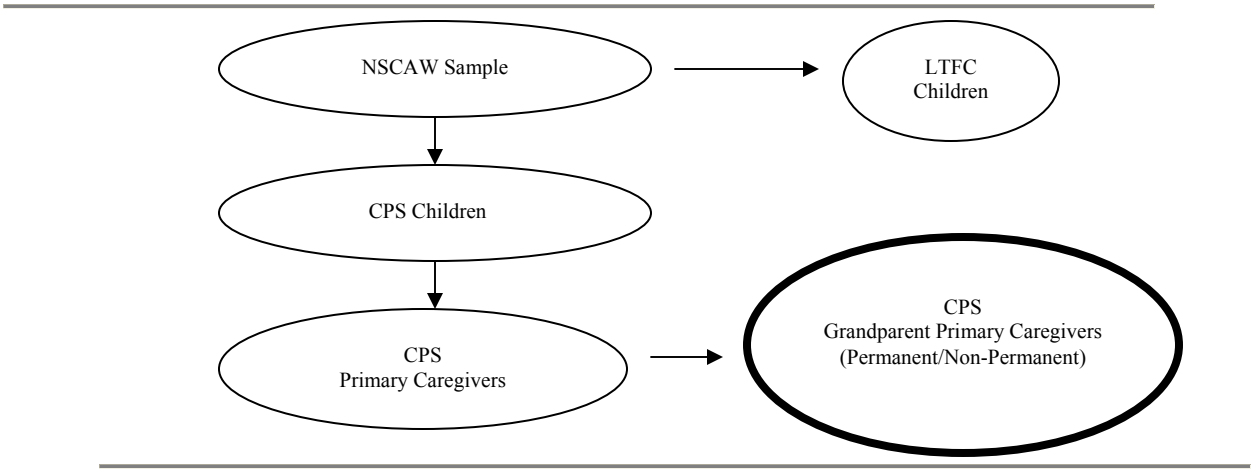
Each randomly selected child within the NSCAW CPS sample is linked to a unique primary caregiver. A grandparent was selected into this study sample if the relationship of the "primary caregiver" to the sampled child (CPS sample) was coded as "grandmother" or "grandfather." As a result, 465 grandparents (449 grandmothers and 16 grandfathers) constitute the original sample used in this study.

Each grandparent in the study sample is classified by the NSCAW as a "non-permanent" (n=319) or "permanent" caregiver (n=146). Non-permanent caregivers include grandparents who are designated by the state as "foster parents" or "kinship caregivers." Non-permanent caregivers typically care for children until the child can return to his/her permanent caregiver. However, in some cases the non-permanent caregiver is caring for a child who cannot return to his/her previous permanent caregiver. Under these circumstances the non-permanent caregiver cares for the child until an alternate permanent living arrangement can be made. The permanent caregiver is the primary parental figure with whom the child is residing and, as a practical matter, the child's living arrangement is considered permanent. Thus, the sample used in the proposed study is comprised of caregivers identified as the child's grandparent whether or not s/he is categorized as permanent or non-permanent (see Figure 4.1). The distinction of non-permanent versus permanent was preserved in the form of a nominal-level variable identified as "caregiver status" and incorporated into the statistical analyses.

National Representative Sample of Grandparents in State Child Welfare Systems

Each grandparent in the "grandparent study sample" is linked to a unique child within the CPS nationally representative sample of children. Therefore, the "grandparent sample" used in this study constitutes a nationally representative sample of grandparents who are the primary caregivers of children that are/have been the subjects of child maltreatment investigations (or assessments) conducted by state child welfare agencies and reside in states that did not require a state agency representative to make first contact. The grandparent's unique link to a randomly selected child is the best attempt to collect a probability sample that is nationally representative of grandparents who are the primary caregivers of children within the CPS child welfare system. However, no claim is made that this sample is nationally representative of all grandparents raising grandchildren in the United States. No other dataset of a nationally representative sample of grandparents raising grandchildren within the child welfare system across the U.S. is known to this researcher.

Figure 4.1
Overview of Selection of Grandparent Caregivers into Study Sample



Grandparents Raising Grandchildren within Child Welfare Systems: A Unique Population?

In the research literature on the *emotional well being of grandparents raising grandchildren*, few studies make distinctions between grandparents involved with state child welfare systems and those who are not. In other words, studies that examine emotional well being among grandparents raising grandchildren do not routinely identify grandparents by labels such as foster parent, informal kinship caregiver, receives child welfare services but not foster care payments, investigated for suspicion of child maltreatment, etc. Thus, it is unclear to what extent the grandparent caregivers reported in the extant studies on the emotional well being of grandparents raising grandchildren differ from grandparents in this study.

It should not be assumed that grandparents in this study sample have perpetrated child maltreatment or that his/her grandchild (i.e., the child randomly selected into the NSCAW CPS sample) has experienced abuse or neglect. While all children in the CPS sample were the subjects of a child maltreatment investigation or assessment by a state child welfare agency, it is important to consider that the most recent national data indicated that only 27.5% of all child maltreatment investigations/assessments conducted by state child welfare agencies in the U.S. are substantiated (DHHS, 2003). No attempt was made in this study to link a CPS investigative/administrative finding of child maltreatment to a grandparent or any family member in the household.

The salient point here is that it is not known to what degree a sample of grandparents, selected from a sampling frame of state child welfare agency data, are

different from grandparents raising grandchildren who are not involved with these agencies. Caution is warranted in making *a priori* assumptions about this sample of grandparents because they were selected from a state child welfare population. The extent to which grandparents in the NSCAW sample are similar to and different from the general population of grandparents raising grandchildren is simply not known. On balance, an examination of the emotional well being of grandparents using this national probability sample will be a contribution to this research literature and can be used in the future for comparative purposes.

MEASUREMENTS

The measurements section identifies and defines the study variables. The psychometric properties of instruments used to measure constructs and relevant data coding/recoding issues are also presented in this section. An overview of key characteristics for each study variable is shown in Table 4.4.

EMOTIONAL WELL BEING: DEPENDENT VARIABLE

The level of emotional well being of a grandparent who is the primary caregiver of her/his grandchild is the dependent variable in this study. Emotional well being is conceptualized as an emotional state existing along a continuum with the highest levels of negative affect or psychological distress (e.g., feelings of sadness, hopeless, blue, tense, nervousness) and positive affect (happy, cheerful, peaceful, interested in life) at opposite ends (Mirowsky & Ross, 2003; Stewart, Ware, Sherbourne, & Wells, 1992).

It is the quality of the affect that is of interest in this study and not whether an emotional state meets the diagnostic criteria for a mental disorder. In some studies on

grandparents raising grandchildren, diagnostic criteria for a depressive or anxiety mental disorder have been used to measure emotional well being. As used in the current study, emotional well being includes important dimensions of emotional states not captured by dichotomous measures of mental disorders (e.g., depressed/not depressed) (Mirowsky & Ross, 2002).

Emotional well being was measured using the Mental Component Summary (MCS) scale of the Short Form (SF)-12-Item Health Survey (SF-12) (Ware, Kosinski, & Keller, 1995). The SF-12 is a subset of twelve items that are contained within the Medical Outcomes Study 36-Item Health Survey (SF-36) (Ware, Kosinski, & Keller, 1994). Both the SF-12 and SF-36 produce a MCS and a separate Physical Component Summary (PCS) sub-scale, which have been empirically shown to measure distinct constructs (Kagee, 2001; Ware et al, 1995). The psychometric properties of the SF-12 are based on the reliability and validity of the SF-36.

According to Ware, Kosinski, Turner-Bowker, and Gandek (2002) "the SF-36 is the most widely-used survey throughout the world because it is both brief and comprehensive, readily available, psychometrically-sound, and of proven usefulness in measuring health status and monitoring health outcomes in both general and specific populations" (p. 3). The SF-12 has reliability and validity consistent with the SF-36 measures. Since it is shorter, it is more quickly administered in large-scale surveys with general populations. The SF-12 and SF-36 are "self-report" questionnaires that are appropriate for use with individuals aged 14 and older. Normative data on the SF-12

have been established for the general population in the U.S. and sub-groups by age and gender (Ware et al., 1995; 2002).

Like the SF-36, the SF-12 is considered to be a "generic measure of health," which measures functional status and physical and emotional well being, derived from the following eight scales: physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, mental health (Ware, Kosinski, & Keller, 1995). A principal components factor analysis conducted on the SF-36, using a nationally representative sample of the general population in the U.S., reveals a two-factor solution that accounts for 82.4% of the variance in the scores and reveals separate constructs of mental and physical health dimensions as measured by the SF-36 (Kagee, 2001).

Kagee (2001) reports the reliability coefficients (test-retest, internal consistency, and alternate form reliability studies) are .70 and above on each of the eight subscales of the SF-36. Corcoran and Fischer (2000) report the SF-36 MCS scale has very good internal consistency reliability properties with an alpha coefficient of .88. The SF-36 demonstrates good criterion validity with known-groups in predicting level of physical abilities, mental health conditions, and expected convergent and divergent validity with scales measuring similar and dissimilar constructs (Kagee, 2001).

Using a representative sample of the general population in the U.S., Ware, Kosinski, and Keller (1996) report that the SF-12 MCS reliably predicts SF-36 MCS scores (multiple R square = .918). Test-retest reliability correlations for the SF-12 MSC over a two-week period have been reported to be r = .79 (Ware et al., 1996) and r = .76

(Ware et al., 1995). Based on Ware et al.'s (2002) review of the psychometric literature, scales that have a reliability coefficient of .70 and above are acceptable for group-level analyses. In addition, Ware et al. (1996) report cross-sectional and longitudinal studies demonstrating that empirical validity of the SF-36 was replicated using the SF-12 with reference to various states of emotional well being and psychopathology (Corcoran & Fischer, 2000).

The SF-12 MCS scores in the NSCAW General Use Dataset are reported as standardized T-scores that range from 0-100 with a SD of 10 and a mean of 50, consistent with the scoring protocol described in the users' manual (Ware et al., 1995). SF-12 MCS standardized scores that exceed the national mean are indicative of higher levels of positive affect relative to most people in the general population of the United States. Although the SF-12 users' manual reports that a SF-12 MCS score of 34 (SD = 0.7) is indicative of clinical depression (Ware et al., 1995), the MSC was not designed to establish diagnostic "clinical cut-off" scores. The intent of the SF-12 MSC (and SF-36 MSC) scale is to measure varying levels of emotional well being that are comparable among respondents, between groups, and across time.

INDEPENDENT VARIABLES

This section describes the study's independent variables, 1) perceived neighborhood risk and 2) alcohol and drug consumption.

Conceptual and Empirical Development of Perceived Neighborhood Risk

The NSCAW nine-item Community Environment Scale (CES) (Table 4.2a) was used to construct an independent variable that would index characteristics of the

neighborhood conditions in which grandparents and their grandchildren live. The CES was developed by the NSCAW research team and is comprised of several items adapted from a separate survey used by Furstenburg et al. (1999) to study urban families. However, no reliability or validity data are reported on the CES instrument used in the NSCAW. Dr. Richard Barth, a Co-Principal Investigator of the NSCAW, noted that CES items have not received analytical attention to date (personal communication, February 8, 2004).

According to the NSCAW Reference Manual, the CES was used to measure "neighborhood factors" (Dowd et al., 2003, p. 50), although no empirical data are available to discern the nature of the "factors" measured by the NSCAW CES. While a review of the content of the items in Table 4.2a suggests the CES items tap a construct similar to neighborhood disorder (Mirowsky & Ross, 1999; Skogan, 1990), this researcher conducted a principal components (PCA) and exploratory factor analyses to 1) identify whether underlying factors could be detected among the nine items that comprise the CES, and 2) develop a measure to index the neighborhood conditions in which grandparents and their grandchildren live. The PCA conducted adheres to Hair et al.'s (1998) recommendations. Due to the level of detail involved, Appendix A contains a description of the conceptual and empirical development of "perceived neighborhood risk" that was used to index neighborhood conditions in the present study.

Table 4.2a: NSCAW CES Items

Each respondent is asked to endorse one of the following items in terms of (1) not a problem at all; (2) somewhat of a problem, or (3) a big problem in your neighborhood:

Item 1: Assaults and muggings? Would you say this is….

Item 2: Delinquent gangs or drugs gangs? Would you say this is… (and so on through item 5).

Item 3: Open drug use or drug dealings?

Item 4: Unsupervised children?

Item 5: Groups of teenagers hanging out in public places and making a nuisance of themselves?

For these next items, please think about how your neighborhood compares to most other neighborhoods.

Item 6: Is your neighborhood…

1 = safer,
2 = about the same, or
3 = not as safe as other neighborhoods?

Item 7: Does your neighborhood have…

1 = more neighbors help each other
2 = about the same number of neighbors help each other, or
3 = fewer neighbors help each other than most neighborhoods?

Item 8: Does your neighborhood have…

1 = more involved parents,
2 = about the same number of involved parents, or
3 = fewer involved parents than most neighborhoods?

Item 9: Is your neighborhood…

1 = a better placed to live,
2 = about the same, or
3 = a worse place to live than most neighborhoods?

Measurement Properties of Perceived Neighborhood Risk

The outcome of the PCA identified a unique factor (CES items 1-5, 6 & 9) and was labeled "perceived neighborhood risk." Table 4.2b shows the alpha coefficient for the construct of "perceived neighborhood risk" demonstrates a high level of reliability is .885. The PCA shows evidence of the factorial validity of the construct. The perceived neighborhood risk index is the mean of the of the seven CES items (CES items 1-5, and 6 & 9). A higher index of neighborhood risk indicates that lower levels of 1) social order and 2) safe conditions are perceived to characterize one's neighborhood. Thus, the index of perceived neighborhood risk is a 1) measure of observable phenomena, 2) characteristic of the neighborhood as perceived by grandparents (i.e., grandparent

responses to the CES items used to develop the measure of "perceived neighborhood risk"), and 3) hypothesized to be linked to the emotional well being of grandparents raising grandchildren.

Table 4.2b: Alpha Coefficients for Perceived Neighborhood Risk Index

	Unweighted Sample	Population Estimate
	Alpha	**Alpha**
Perceived Neighborhood Risk (CES Items 1-5, 6 & 9)[1]	.866	.885

1. See Table 4.2a for content of each item.

A Summary of the Construct of Perception of Neighborhood Risk

Perceived neighborhood risk is an index that measures the level of social order and safe conditions that characterize a neighborhood based on the perceptions of grandparents raising their grandchildren. Perceived neighborhood risk is conceptually similar to "perceived neighborhood disorder" (Latkin & Curry, 2003; Ross & Mirowsky, 1999; Skogan, 1990), "ambient hazards" (Aneshensel & Sucoff, 1996) and what Cutrona et al. (2000) refer to as "community context." Neighborhood disorder, ambient hazards, and community context have been linked to emotional well being (see Chapter II) and measured in previous studies by asking residents, with reference to the neighborhood in which they live, to describe perceived levels of open use and sale of drugs on the street; loud noise (e.g., arguing/fighting neighbors, gunshots, heavy traffic); sexual harassment or other forms of aggressive acts; graffiti; vandalism; broken street-lights; public drinking and/or gambling by loitering individuals; accumulating trash-filled lots and alleys; deteriorating, abandoned, or poorly maintained buildings; open prostitution; and groups of youth regularly loitering in the neighborhood for extended periods of time with no

adult supervision. According to Ross and Mirowsky (1999), increasing levels of neighborhood disorder can be perceived by residents as cues that indicate decreasing levels of social control and social order in the neighborhood.

The CES items used to construct the perceived neighborhood risk variable do not probe the perception of physical qualities of the neighborhood (e.g., perceived physical condition of buildings and streets, sanitary conditions, maintenance of vacant lots/yards, etc.) or the conceptual range of social order reflected in the measures of ambient hazards and neighborhood disorder reviewed. Therefore, it may not be appropriate to identify the constructed index in this study (perceived neighborhood risk) as "perceived neighborhood disorder."

The incorporation of the term "perceived" in the name of the constructed independent variable does not imply "unreliable" or "all in one's head." It is reasonable to expect that the perceptions grandparents raising grandchildren report about their neighborhood indicate social conditions that exist in the environment. According to a review by Ross and Mirowsky (1999), studies have reported moderate to high correlations neighborhood characteristics as perceived by residents and independent ratings made by researchers. Thus, because neighborhood properties are indeed "perceived," the construct of "perceived neighborhood risk" should not be interpreted as an inherently unreliable measure.

Measures of Alcohol and Drug Consumption

Each measure of AOD consumption was constructed based on grandparent caregiver responses to items selected from the Composite International Diagnostic

Inventory (CIDI)-Alcohol Dependence Module (Short Form) and CIDI-Drug Dependence Module (Short Form) (Kessler et al., 1998). Selected items, rather than composite scores derived from the full CIDI modules were used because 1) the CIDI modules are specifically designed to evaluate whether respondents met the diagnostic criteria for alcohol or drug dependence, 2) only "permanent caregivers" were administered these modules, and 3) among the 146 grandparents in the study sample who were coded as "permanent caregivers," only one met the diagnostic criteria for alcohol dependence and none met the criteria for drug dependence. Much greater variation was observed among responses on items selected from the CIDI modules that asked about levels of alcohol and drug use (Table 4.3a and Table 4.3b). In addition, there was a 97.3% and 97.9% response rate (among "permanent" grandparent caregivers in unweighted sample) to specific CIDI items that provide self-report information about the level of alcohol and drug use, respectively. Therefore, several forms of a measure to index levels of AOD use were constructed using Item 1 of the (CIDI)-Alcohol Dependence Module and Items 1-9 of the CIDI-Drug Dependence Module[6] and described further in the following sections.

Alcohol Use

Alcohol use is a dichotomous measure, i.e., whether the grandparent reported drinking alcohol or not on any single day during the previous 12 months of responding to CIDI Item 1 (Table 4.3a). As only three grandparents endorsed the category of "4-10 drinks in a day" and the lower end of this continuum (4 drinks) would not meet the

[6] The multivariate analysis and data imputation issues associated with grandparents categorized as "permanent caregivers" is revisited in the plan for data analysis section later in this chapter.

criteria for "binge drinking" (i.e., alcohol misuse), the "4-10 drinks" category was collapsed into the "1-3 drinks in a day" group. No grandparent caregiver endorsed a level of alcohol consumption beyond the "4-10 drinks" category.

Table 4.3a: CIDI Items Used to Construct an Index of Alcohol Use

CIDI Alcohol Dependence Module: Item 1
The next questions are about how frequently you drink alcoholic beverages. By a "drink" we mean either a bottle of beer, a wine cooler, a glass of wine, a shot of liquor, or a mixed drink. With these definitions in mind, what is the largest number of drinks you had in any single day during the past 12 months?
1 = None or never drink 2 = 1-3 drinks in a day 3 = 4-10 drinks in a day 4 = 11-20 drinks in a day 5 = More than 20 drinks in a day

Drug Consumption: Drug Misuse & Category of Drug Misuse

Two separate variables were constructed to measure drug consumption, i.e., "drug misuse" and "category of drug misuse." "Drug misuse" is a dichotomous self-report measure i.e., drug misuse or no drug misuse reported. The term "misuse" (rather than "use") is an appropriate label for the "drug misuse" variable because, as indicated in Table 4.3b, a "yes" endorsement means the grandparent consumed the target drug either 1) without a physician's prescription, 2) in larger amounts than prescribed, or 3) for a longer period than prescribed. Thus, drug misuse rather than use, abuse, or dependence was determined to be the best label for this measure. Drug misuse was indicated if the grandparent reported the misuse of any drug listed in Table 4.3b. No drug misuse was indicated if the grandparent reported "no" to all of the questions in Table 4.3b.

The second measurement of drug misuse variable is labeled "category of drug misuse" and has three mutually exclusive levels. To create this measure, each drug listed

in Table 4.3b was first broadly classified as "prescription-type" (sedative, tranquilizer, and analgesic) or "illicit" (inhalant, marijuana/hashish, and cocaine/crack-cocaine).[7] Thus, the three mutually exclusive levels of the "category of drug misuse" variable are: 1) prescription-type drug; 2) illicit drug; and 3) no drug misuse.

Alcohol Use and/or Drug Misuse

The variable "Alcohol Use and/or Drug Misuse" is a dichotomous measure and derived from the Alcohol Use and Drug Misuse variables. As follows, if the response to either the alcohol use or the drug misuse variable (or both) is "yes" (1) the value for Alcohol Use and/or Drug Misuse will be "yes" (1). The Alcohol Use and/or Drug Misuse variable can only be a "no" (0) if both Alcohol Use and Drug Misuse variable values are "no" (0).

Drug Misuse and Alcohol Use

The variable "drug misuse and alcohol use" has four mutually exclusive levels, i.e., 1) drug misuse, alcohol use; 2) drug misuse, no alcohol use; 3) alcohol use, no drug misuse; and 4) no drug misuse, no alcohol use. Thus, the dichotomous drug misuse and alcohol use variables, already described, were used to create the four-level variable "drug misuse and alcohol use."

Post-Hoc Measures of Alcohol and Drug Consumption

After the study began, two additional measures of alcohol and drug consumption were developed during an unplanned exploratory analysis of the data. The following two

[7] No grandparents reported the use of an amphetamine, hallucinogen, or heroin.

measures were used in univariate descriptive and multivariate analyses conducted and reported in Chapter V: 1) category of drug misuse and 2) drug misuse and alcohol use.

Table 4.3b: CIDI Items Used to Construct an Index of Drug Misuse

CIDI Alcohol Dependence Module: Items 1a-i

The next questions are about drugs you have used on your own. ***By "on your own" we mean either without a doctor's prescription, in larger amounts than prescribed, or for a longer period than prescribed.***

During the past 12 months, did you use _____ on your own. Note responses are coded Yes or No.

a. Sedatives, barbiturates/sleeping pills. Drugs such as Seconal, Halcion, or Methaqualone.
b. Tranquilizers or "nerve pills" Drugs such as Xanex, Valium, Ativan, Meprobamate, or Librium.
c. Amphetamines or stimulants. Drugs such as Methamphetamine, Preludin, Dexedrine, Ritalin, or "speed."
d. Analgesics or "pain-killers." Does not include normal use of aspirin, Tylenol without Codeine. But does include Tylenol with Codeine, Demerol, Darvon, Percodan, Codeine, Morphine, and Methadone.
e. Inhalants that you sniff or breathe to get high or feel good. Drugs such as Amyl nitrate, Freon, Nitrous Oxide ("whippets"), gasoline, or spray paint.
f. Marijuana or hashish.
g. Cocaine or crack or "free-base."
h. LSD or other hallucinogens. Drugs such as PCP, angel dust, peyote, ecstasy (MDMA), or mescaline.
i. Heroin

CONTROL VARIABLES

A Description of Variables within Grandparent Demographic/Resource & Grandchild Demographic/Caregiver Demand Domains

With the exception of the dependent and independent variables, all other study variables are conceptualized within the following domains 1) grandparent demographic/ resources and 2) grandchild demographic/caregiver demand (see Table 4.4). A multivariate analysis was conducted to "control for the effect" of 1) grandparent demographic/resources and 2) grandchild demographic/caregiver demand variables so the relationship between emotional well being among grandparents and the independent

variables could be more clearly examined. The domain classifications are not precise since several grandparent demographic characteristics, for example, could be viewed as resources and visa-versa. The factors that comprise each domain are found in the conceptual model (Figure 3.1) and examined using univariate and bivariate analyses (see Chapter V).

Table 4.4 shows that most of the control-level variables are derived from single-items of the various NSCAW survey modules and most of the operational definitions are self-explanatory (e.g., grandchild and grandchild age, grandparent gender, etc.). The measurement properties of the instruments used to measure social support, child emotional/behavior problems, grandparent physical health, and caregiver status require further explanation.

Measurement of Social Support, Child Behavior/Emotional Problems, Grandparent Physical Health & Caregiver Status

Social Support

The NSCAW module used to measure social support consists of 14 questions and is a blend of questions extracted from the 27-Item Social Support Questionnaire (SSQ) (Sarason, Levine, Basham, & Sarason, 1983) and 14-Item Duke-UNC Functional Social Support Questionnaire (D-UNC, SSQ) (Broadhead, Gehlbach, Gruy, & Kaplan, 1988). As a general observation, the NSCAW Social Support module appears to use more "stem" questions from the D-UNC, SSQ and asks respondents to evaluate their level of satisfaction relative to the "stem question" using items from the SSQ.

A review of the psychometric properties of the SSQ suggests the instrument has excellent reliability (alpha = .97) and correlates well with other social support measures (Sarason et al., 1983). The two theoretical factors measured by the D-UNC, i.e., confidant/e and affective support, have low levels of internal consistency reported at .62 and .64 (item-remainder correlations), respectively. In addition, Broadhead et al. (1988) report that the D-UNC items that ask respondents about "help with money" and "help with transportation" are "unreliable." However, these items appear in the NSCAW Social Support Module. The test-retest reliability correlation coefficient (average test-retest interval 13.1 days) of the D-UNC, SSQ is reported at .66 using 11 of the 14 items ("telephone calls from people I know" was the third item determined to be unreliable but does not appear on the NSCAW Social Support Module).

Neither the NSCAW manual nor published research report psychometric data for the NSCAW Social Support Module. There does, however, appear to be an acceptable level of content validity for each item on the NSCAW Social Support Module.

The NSCAW Social Support module was administered only to "permanent" caregiving grandparents (146/465). The limited variability on perceived level of social support is noteworthy as only 5 grandparent caregivers in the sample reported being "not satisfied;" the remainder reported "satisfied." The limitations of using this variable in the multivariate analyses are addressed in the next chapter.

Child Behavior & Emotional Problems/Status

The Child Behavior Checklist (CBCL) (Achenbach, 1991) was used to measure the level of child behavior and emotional problems. According to Achenbach (1991), the

CBCL is a nationally standardized instrument designed to assess child behavior and emotional problems based on responses from parents and/or surrogate parents. Two age-appropriate versions of the CBCL were used in the NSCAW study based on the child's age, i.e., ages 4-18 (118 Items) and 2-3 (59 Items). Both forms of the CBCL focus on the assessment of children's clinical problems.

The CBCL clinical syndrome and social competence sub-scale scores are not available in the General Use Data Set. However, the NSCAW General Use Data Set contains a variable derived by collapsing the CBCL Total Problem Scores into a three-level ordinal scale. These three levels correspond to the clinical "cut-off scores" reported in the CBCL Manual: normal child behavior (< 60), borderline clinical (60-63), and clinical behavior/emotional problems (> 63).

The psychometric properties for the CBCL measure designed for children 4-18 are stronger compared to the reliability and validity reported for the CBCL for toddlers. The CBCL Manual reports that the instrument for 4-18 year old children has an inter-rater reliability and test-retest of correlation (one week) of .96 and .95 respectively, for all 118 items. The CBCL Manual reports the mean inter-rater reliability correlations (across all subscales) for children ages 2 and 3 are .63 and .60, respectively. The mean test-retest correlation (mean test-retest interval = 7.7 days) across all sub-scales (2-3 age CBCL) is reported at .85.

The CBCL Manual reports "referral rates" of children to mental health services as the criterion reference to validate the CBCL clinical cut-off points. Among a sample of children administered the CBCL (4-18 years old), 82% of those who were referred for

mental health services scored in the clinical range (> 63) compared to 30% of the children who were not referred but had a CBCL score > 63. In terms of odds ratios reported, children (4-18) who had a score > 63 were 11 times more likely to be referred for mental health services than those children who scored in the "normal" (< 60) range.

Establishing criterion validity with the toddler-aged children was more difficult according to Achenbach (1991) as there is much less agreement on emotional/behavioral diagnostic constructs for this age group. The probability of toddlers being referred for mental health services with CBCL scores within the following intervals, 60-63, 64-67, 68-71, 72-75, 76-100 was reported as .62, .78, .82, .88, and .93, respectively. In addition, toddlers with a CBCL a scale score in the clinical range are 3.7 (somatic problems) - 11.3 (withdrawn) times more likely to be referred for mental health services than children who scored in the normal range.

In the current study, 38.5% of the children in the unweighted sample were less than 2 years of age (population estimate is 21.0%). Therefore, no CBCL scores are reported for this group (i.e., missing data). In this study, instead of removing this CBCL-derived variable or deleting grandparents' caring for a child < 2 years of age from the analysis, children who were younger than 2 years were coded as having CBCL scores within the normal range.

Grandparent Physical Health

The SF-12 Physical Component Summary (PCS) scale was used to measure grandparent physical health. The SF-12 PCS is a self-report nationally standardized measure of physical health derived from the following conceptual domains: physical

functioning, role-physical, bodily pain, and general health (Ware et al., 1995). The SF-12 PCS items are from the more established SF-36 (Ware et al., 1994) and scores for the SF-12 PCS and SF-36 PCS are highly correlated (r = .959) based on studies conducted by Ware et al. (1995).

Measures on the SF-12 PCS are reported as T-scores with a nationally standardized mean of 50.00 and SD of 10.00. In the U.S. general population, the mean SF-12 PCS scores for adult women and men are 49.11 (SD=9.92) and 51.22 (SD=8.80), respectively (Ware et al., 2002). Corcoran and Fisher (2000) call the reliability of the SF-12 PCS excellent reporting internal consistency alpha of the PCS as .93 and test-retest (two-week) correlations between administrations as .89. Based on clinical measurements, the SF-12 PCS has been shown to distinguish clinical versus non-clinical groups (known-groups validity) of patients and serious versus minor health conditions (Ware et al., 1995; Ware et al. 2002). In addition, SF-12 PCS scores can be used to detect changes in physical health status over time (Corcoran & Fisher, 2000).

Grandparent Caregiver Status

Each grandparent in the study sample is classified by the NSCAW as a "non-permanent" (n=319) or "permanent" caregiver (n=146). The NSCAW operationalizes "non-permanent" caregivers status as the primary caregiver of a child in "out-of-home-placement," i.e., "the child is placed with an individual or facility which is licensed to provide a home for orphaned, abused, neglected, delinquent, or disabled children, usually with the approval of the government or a social service agency" (Dowd, et al., 2003, Appendix B, p. B-10). Non-permanent caregivers include grandparents who are

designated by the state as "foster parents" or "kinship caregivers." Furthermore, non-permanent caregivers typically care for children until the child can return to his/her permanent caregiver. However, in some cases the non-permanent caregiver is caring for a child who cannot return to his/her previous permanent caregiver. Under these circumstances the non-permanent caregiver cares for the child until an alternate permanent living arrangement can be made. The permanent caregiver is the primary parental figure with whom the child is residing and, as a practical matter, the child's living arrangement is considered permanent. The literature indicates state-specific criteria informing the designation as a grandparent as a "foster parent" or "kinship caregiver" substantively varies across states (DHHS, 2000; Smith, Beltran, Butts, & Kingson, 2001), which has important implications for the interpretation of this variable beyond how it is merely operationalized.

Table 4.4a: Overview of Study Variables

VARIABLE	INSTRUMENT	NSCAW GENERAL USE DATA WAVE 1 VARIABLE NAME	LEVELS OF VARIABLE
DEPENDENT VARIABLE			
Grandparent Emotional Well Being	SF-12-MCS	PPH MCS	0-100
INDEPENDENT VARIABLES			
Perceived Neighborhood Risk	Perceived Neighborhood Risk Index Constructed by Researcher	PCE1A-5A; 6A & 9A	1-3
Alcohol Use	CIDI Alcohol: Item 1	PAD1A (Alcohol)	Yes=1/No=0
Drug Misuse	CIDI Drug: Items 1a-I	PDD1AA-PDD1IA	Yes=1/No=0
Alcohol Use and/or Drug Misuse	Derived from Alcohol Use & Drug Misuse Measurements		Yes=1/No=0

Table 4.4a, Continued			
VARIABLE	**INSTRUMENT**	**NSCAW GENERAL USE DATA WAVE 1 VARIABLE NAME**	**LEVELS OF VARIABLE**
CONTROL VARIABLES			
Grandparent ***Demographic/ Resources Domain***			
Gender	NSCAW Questionnaire	CHDRELCG Grandmother = 7 Grandfather = 14	1 = Female 0 = Male
*Race/Ethnicity	NSCAW Questionnaire	CGRRACE (Recoded Variable)	**White Non-Hispanic Black Non-Hispanic Other Non-Hispanic Hispanic Origin
Caregiver Status[1]	NSCAW Designation	CGDPERM	1 = Permanent 0 = Non-Permanent
*Age	NSCAW Questionnaire	RCGVRAGE	26-35 yrs 36-45 yrs 46-55 yrs **>55 yrs
Marital Status	NSCAW Questionnaire	PHH12A	1 = Married/Partnered 0 = Non-Married/Partnered
*Educational Level	NSCAW Questionnaire	RHH16A	**No High School or Equivalent 12th Grade/High School Any college or Voc/Tech Bachelor Degree Graduate Degree
Employment Status	NSCAW Questionnaire	RHH21A	1 = Employed 0 = Not Employed
Annual Household Income	NSCAW Questionnaire	RIN2A	1 = 0-9,999 2 = 10,000-19,999 3 = 20,000-29,000 4 = 30,000-39,000 5 = 40,000 and greater
Secondary Caregiver in Home	NSCAW Questionnaire	YCH5PREA	1 = Yes 0 = No
Health Status	Physical Summary Component (PSC) of SF-12	PPH PCS	0-100
Level of Social Support	Adapted from Duke Functional Social Support Scale & Sarason Social Support Questionnaire-3	PSS STATS	1 = Satisfied 0 = Not Satisfied
Annual Household Income per Number of Children in Home	Measure is equal to RIN2A / HHDNOCH	RIN2A & HHDNOCH	0.2-5.0

Table 4.4a, Continued			
VARIABLE	**INSTRUMENT**	**NSCAW GENERAL USE DATA WAVE 1 VARIABLE NAME**	**LEVELS OF VARIABLE**
Grandchild Demographic/ Caregiver Demand Domain			
Physical Health Rating	NSCAW Questionnaire	CHRHEALTH	5 = Excellent 4 = Very good 3 = Good 2 = Fair 1 = Poor
Age (Years)	NSCAW Questionnaire	CHDAGEY	0 -15
Behavioral Problems	Recoded/Derived Measure in NSCAW General Use Data Set Child Behavior Checklist	CHDLT4BH (Ages 2-3) CHDGE4BH (Ages 4-18)	1 = < 60 Normal 2 = 60-63 Borderline 3 = >63 Clinical Range
Number of Years Caring for Child	NSCAW Questionnaire	RCLN5DT RCAM1CDT PN2A PNP2A	.04 -13
Number of Children in Household	NSCAW Questionnaire	HHDNOCH	1-5

Note: * Indicates dummy variable coding strategy used with ** designating reference group.

1The NSCAW operationalizes "non-permanent" caregivers status as the primary caregiver of a child in "out-of-home-placement," i.e., "the child is placed with an individual or facility which is licensed to provide a home for orphaned, abused, neglected, delinquent, or disabled children, usually with the approval of the government or a social service agency" (Dowd, et al., 2003, Appendix B, p. B-10). Non-permanent caregivers include grandparents who are designated by the state as "foster parents" or "kinship caregivers." Furthermore, non-permanent caregivers typically care for children until the child can return to his/her permanent caregiver. Permanent caregivers are those who are the primary caregivers of children *not* in out-of-home placement and there is no expectation that the surrogate parent role will end in the foreseeable future.

Table 4.4b: Review of Operational Definitions for Dependent and Independent Study Variables

Variable	Definition
Emotional Well Being	A standardized measure of an emotional state along a continuum with increasing levels of negative affect and positive affect at opposite ends. Higher scores on the SF-12 MCS indicate higher levels of emotional well being compared to lower scores.
Perceived Neighborhood Risk	A measure of grandparents' perception of observable neighborhood conditions. Higher levels of perceived neighborhood risk indicate that lower levels of social order and safe conditions characterize the environment.
Drug Misuse	A measure that indicates the self-reported use of any drug in Table 5.2a either without a doctor's prescription, in larger amounts than prescribed, or for a longer period than prescribed during the past year. This measure is dichotomous, i.e., yes or no.
Alcohol Misuse	A measure that indicates the self-reported use of alcohol during the past year. This measure is dichotomous, i.e., yes or no.

Table 4.4b, Continued

Category of Drug Misuse	A measure that indicates the misuse of 1) a prescription-type drug (tranquilizer, sedative, or analgesic), 2) illicit-type drug (marijuana, cocaine, inhalant) or no drug misuse during the past year.
Combination of Drug Misuse and Alcohol Use	A measure that indicates the following combinations of drug and alcohol consumption in the past year: 1) drug misuse, alcohol use; 2) drug misuse, no alcohol use; 3) no drug misuse, alcohol use; and 4) no drug misuse, no alcohol use.

DATA ANALYSIS:

SPECIAL CONSIDERATIONS & PLANS FOR ANALYSIS

The data analyzed in this study were collected via a complex survey design (Kish, 1965; Lee, Forthofer, & Lorimor, 1989) and described in the NSCAW User's Manual (Dowd et al., 2003). A complex survey design is one in which multiple stages of stratification and/or clustering techniques are used to collect a sample of data (Fowler, 1984; Kish, 1965). Dowd et al. (2003), Lee et al. (1989), Fowler (1984), and Kish (1965) maintain that an analysis of data from complex survey designs must be informed by design-based considerations such as, but not limited to, the treatment of statistical weights, over-sampling of under-represented groups, and design-effects; all of which are relevant to the NSCAW and this study. Therefore, an overview of the NSCAW design-based properties that impact even the most fundamental univariate descriptive and diagnostic analyses in this study is in order before the data analysis plan is described.

Complex Survey Design & NSCAW Design Effect

Survey methods that stratify and/or cluster data impact the precision of estimating the standard error of a statistic, which is a measure of sampling error. The precision of calculating standard errors using data collected with simple random sampling (SRS) cannot be assumed with samples of the same size collected via stratification or/and

clustering sampling methods (Kish, 1965; Lee, Forthofer, & Lorimer, 1989). For example, according to Fowler (1984), "stratified samples will produce sampling errors that are lower than those associated with simple random samples of the same size for variables that are more homogeneous within strata than in the population as a whole" (p. 39), while clustering will produce higher sampling errors under the same assumptions. Furthermore, and of particular relevance to the NSCAW sampling methodology, is that "unequal rates of selection (designed to increase the precision of estimates for oversampled groups) will produce sampling errors for the whole sample that are higher than those associated with simple random samples of the same size for variables that are more homogeneous within oversampled groups than in the population as a whole" (Fowler, 1984, p. 39). Thus, the stratification, clustering, and oversampling of children used in the NSCAW sampling design, i.e., the survey design effect, should be considered when calculating standard error and parameter estimates (Dowd et al, 2003).

The design effect is "the design-based variance estimate divided by an estimate of the variance that would have resulted if a similar survey used simple random sampling," and therefore is a measure of "how the survey design affects variance estimates" (StataCorp, 2003d, p. 348). To analyze NSCAW data with the intent of estimating valid population parameters, statistical adjustments are recommended to account for an increase in design-based sampling variance associated with 1) stratification and clustering and 2) unequal weighting of the cases.

Dowd et al. (2003), Fowler (1984), and Lee et al. (1989) maintain that the use of a statistical software package that assumes SRS will likely produce biased standard error

estimates when analyzing complex survey data. In this study, STATA v8.0 (StataCorp, 2003a; 2003c) was used to analyze the NSCAW data and the population estimates were calculated by setting the survey commands as follows: [probability weight = NANALWT], [strata = 1], and [primary sampling unit = NSCAWID]. In addition, the standard errors (SE) of the estimates (derived from the STATA output) were manually adjusted upward by a factor of 1.2 as recommended by Dr. Elliott Smith at Cornell University (personal communication, December 3, 2003) and Dowd et al. (2003) to reasonably compensate for the absence of a precise strata variable that is available only in the NSCAW "Restricted Version" Data Sets. As follows, the t-values and alpha levels (p), for example, were adjusted accordingly to evaluate the statistical significance of estimates. The factor of "1.2" is derived from the average design effect calculated across the NSCAW variables and reported in the NSCAW User's Manual (Dowd et al., 2003). Thus, these procedures should be followed in order to replicate the data analyses reported in this study.

Most results reported in this study are shown based on analyses conducted on both the 1) unweighted sample and 2) subsequent survey design-based statistical adjustments to estimate population parameters. However, only the population estimates inform the answers and tests for the research questions and hypotheses that guided this study.

Data Analysis Plans to Answer Research Questions

This section contains the research questions and hypotheses that guided the study and describes the data analysis plan for each question and hypothesis.

Research Question 1

What are the demographic characteristics of grandparents raising grandchildren within the U.S. child welfare system?

Data Analysis Plan

A series of univariate descriptive analyses were conducted using the control level variables shown in Table 4.12.

Research Question 2

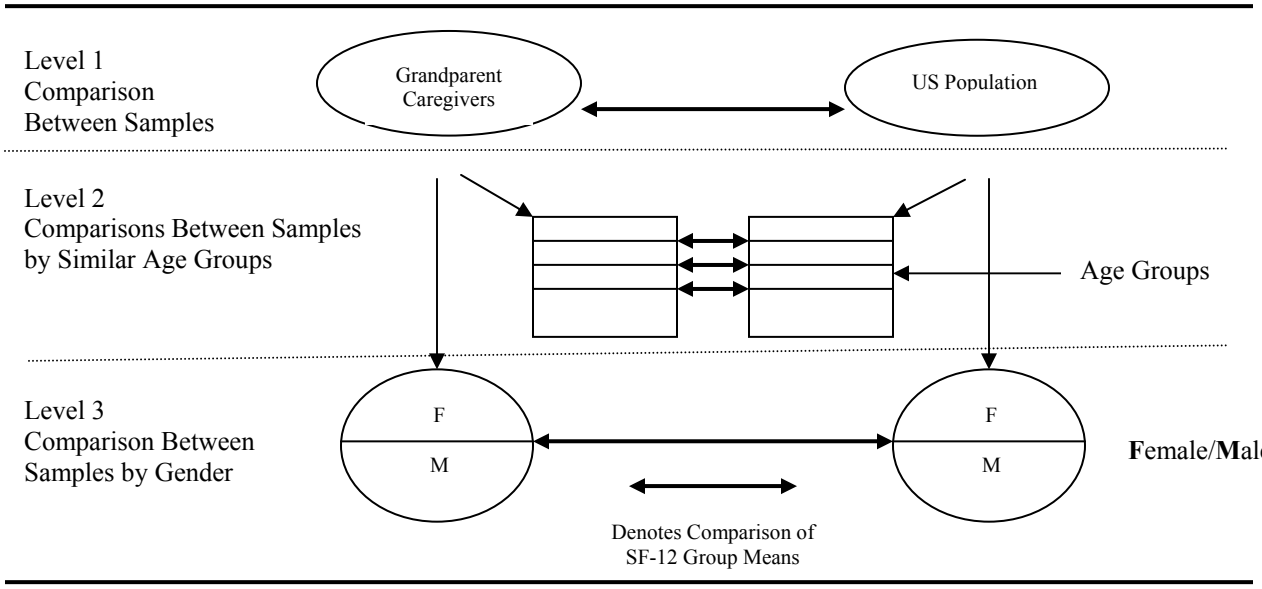
How does the emotional well being of grandparents raising grandchildren compare to the general U.S. population by age and gender groups?

Data Analysis Plan

Group and subgroup SF-12 MSC means were compared for the study sample of grandparent caregivers and national norms for the general U.S. population. Data sources for these analyses were 1) SF-12 MCS scores for grandparents within the NSCAW dataset and 2) SF-12 MCS national norms published in Ware et al. (1995). The MCS norms for age groups reported in the SF-12 User's Manual (18-34, 35-44, 45-54, 55-64, 65-74, and 75+) do not match the NSCAW General Use Data recoded age groups (26-35, 36-45, 46-55, and >55); however several categories were deemed sufficiently similar so that meaningful comparisons could be made.

Figure 4.2 shows a diagram of the analysis plan used to compare SF-12 MSC group means between grandparent caregivers and national norms. In addition, comparisons were made between the groups by age and gender. T-tests were used to compare group means.

Figure 4.2
Overview of Plan for SF-12 MCS Group Mean Comparisons Between Grandparent Caregivers and SF-12 National Norms



Research Question 3

What is the prevalence of alcohol use, drug misuse, and alcohol and/or drug misuse among grandparents raising their grandchildren?

Data Analysis Plan

This research question could be answered only with respect to grandparents coded as "permanent caregivers." A series of univariate descriptive analyses were conducted using the three forms of AOD variables, i.e., alcohol use, drug misuse, and alcohol and/or drug misuse developed from CIDI items.

Research Question 4

Is perceived neighborhood risk a significant factor in predicting emotional well being among grandparents raising grandchildren?

Hypothesis

Higher levels of perceived neighborhood risk are significantly associated with lower levels of emotional well being among grandparents raising their grandchildren after adjusting for the caregiving grandparent's age, race/ethnicity, physical health, marital/partner status, education level, annual household income per child in the home, and employment status, presence of a secondary caregiver in the home, caregivers status (permanent/non-permanent), and grandchild's age, health status, number of years in the home, and level of behavior problems.

Data Analysis Plan: Step 1

A zero-order bivariate correlation analysis was conducted to determine whether a statistically significant relationship existed between levels of perceived neighborhood risk and emotional well being.

Data Analysis Plan: Step 2

A hierarchical multivariate linear regression analytic approach was used. Three multivariate linear regression (MLR) models were constructed to examine whether perceived neighborhood risk was significantly related to emotional well being after controlling for the influence of variables within the grandparent demographic/ resource and grandchild/caregiver demand domains.

In Model 1, a block of variables that comprise the variables within the grandparent demographic/resource domain was entered into a multivariate regression equation to predict emotional well being. In Model 2, a second block of variables clustered within the grandchild demographic/caregiver demand domain was added to

Model 1 to predict emotional well being. In the final multivariate regression model (Model 3), perceived neighborhood risk was added to the previous two blocks of variables and the relationship between the independent variable and emotional well being was examined.

Research Question 5

Is alcohol use a significant factor in predicting the level of emotional well being among grandparents raising grandchildren?

Hypothesis

Alcohol use, compared to no alcohol use, is significantly associated with lower levels of emotional well being among grandparents raising their grandchildren after adjusting for the caregiving grandparent's age, race/ethnicity, physical health, marital/partner status, education level, annual household income per child in the home, and employment status, presence of a secondary caregiver in the home, caregivers status (permanent/non-permanent), grandchild's age, health status, number of years in the home, and level of behavior problems, and perceived neighborhood risk.

Data Analysis Plan: See Research Question 7

Research Question 6

Is drug misuse a significant factor in predicting the level of emotional well being among grandparents raising grandchildren?

Hypothesis

Drug misuse, compared to no drug misuse, is significantly associated with lower levels of emotional well being among grandparents raising their grandchildren after adjusting for

the caregiving grandparent's age, race/ethnicity, physical health, marital/partner status, education level, annual household income per child in the home, and employment status, presence of a secondary caregiver in the home, caregivers status (permanent/non-permanent), grandchild's age, health status, number of years in the home, and level of behavior problems, and perceived neighborhood risk.

Data Analysis Plan: See Research Question 7

Research Question 7

Is alcohol use and/or drug misuse a significant factor in predicting the level of emotional well being among grandparents raising grandchildren?

Hypothesis

Alcohol use and/or drug misuse, compared to no alcohol use and/or drug misuse, is significantly associated with lower levels of emotional well being among grandparents raising their grandchildren after adjusting for the caregiving grandparent's age, race/ethnicity, physical health, marital/partner status, education level, annual household income per child in the home, and employment status, presence of a secondary caregiver in the home, caregivers status (permanent/non-permanent), grandchild's age, health status, number of years in the home, and level of behavior problems, and perceived neighborhood risk.

Data Analysis Plan for Research Questions 5, 6, & 7: Step 1

Three zero-order t-tests were conducted to determine whether a statistically significant relationship exists between SF-12 MCS (emotional well being measure) group means using the following as grouping variables: 1) alcohol use, 2) drug misuse, and 3)

alcohol and/or drug misuse. Only the AOD variables that had a statistically significant bivariate relationship with emotional well being (Step 1) were used in the analysis described in "Step 2."

Reduced Sample

These analyses were restricted to grandparents designated as "permanent caregivers" in the NSCAW as non-permanent caregivers were not asked about AOD use.

Data Analysis Plan for Research Questions 5, 6, & 7: Step 2

Hierarchical multivariate linear regression was used to examine whether the AOD variable(s) selected in Step 1 were significantly related to emotional well being after controlling for the influence of variables within the grandparent demographic/resource, grandchild/caregiver demand domains, and perceived neighborhood risk.

In Model 1, a block of variables that comprise the variables within the grandparent demographic/resource domain was entered into a multivariate regression equation to predict emotional well being. In Model 2, the second block of variables within the grandchild demographic/caregiver demand domain was added to Model 1 to examine the cumulative impact of these factors on grandparent emotional well being. In Model 3, perceived neighborhood risk was added to the previous two blocks of variables. In the final regression model (Model 4) the AOD variable(s) was/were added to the previous three blocks of variables to examine the relationship between the independent variables and emotional well being.

A model-based method (Allison, 2002; Hair et al., 1998) in which missing data for non-permanent caregiving grandparents are imputed and incorporated into the

analyses was considered and would have increased the statistical power of the multivariate analysis. However, any imputed findings concerning AOD use would be relevant only to permanent caregiving grandparents. Thus, it seemed most prudent to use only the permanent caregiving grandparents for analyses involving the AOD variables, even given the limitations arising from the reduced sample size.

Research Question 8

Is there any evidence that a statistically significant interaction between the AOD and perceived neighborhood risk variables significantly affect the emotional well being among grandparents raising grandchildren?

Data Analysis Plan

Multivariate linear regression was used to answer this research question. First, an interaction variable was constructed via the cross-product of perceived neighborhood risk and the statistically significant AOD variable(s) identified in Step 1 of the data analysis plans for Research Questions 5-7. Second, the interaction variable was entered into the regression equation after all of the control and independent variables. An interaction effect was indicated if the interaction variable was significantly associated with emotional well being.

DATA DIAGNOSTICS

Missing Data, Statistical Power, & Multivariate Regression Diagnostics

Due to the level of detail involved, a missing data analysis and discussion of the statistical power based on separate multivariate analyses that used different sample sizes are reported in Appendix B. The regression diagnostics conducted are reported in

Appendix C. In sum, the use of listwise deletion to address the missing data in this study resulted in a sample size reduction of 18.50%, i.e., from 465 to 379 grandparents available with complete data on all study variables. The statistical power of the multivariate regression model (Model 4 shown in Table 5.13) to detect a statistically significant R^2 of at least .130 (i.e., account for 13% of the variance in emotional well being) is estimated to be .99 [Lambda = 56.85, F(23,355) = 1.56].[8] In the multivariate regression analysis that used only "permanent" caregiving grandparents, the use of listwise deletion to address the missing data in this study resulted in a sample size reduction of 13.70%, i.e., from 146 to 126 "permanent" caregiving grandparents available with complete data on all study variables. The statistical power of the multivariate regression model (Model 4 shown in Table 5.17) to detect a statistically significant R^2 of at least .130 (i.e., account for 13% of the variance in emotional well being) is estimated to be .61 [Lambda = 18.90, F(24,101) = 1.63]. However, when 12 statistically significant predictor variables (identified in Table 5.17) were used to construct the regression model shown in Table 5.18; the statistical power (post-hoc analysis) of this analysis (Table 5.18) to detect a statistically significant R^2 of at least .130 (i.e., account for 13% of the variance in emotional well being) was estimated to be .80 [Lambda = 18.90, F(12,113) = 1.84].

SUMMARY

This chapter presented the methodology used to conduct a cross-sectional, secondary analysis of NSCAW Wave 1 data. An overview of the NSCAW and sampling

[8] This statistic is based on a medium effect size estimate (f^2) of .15 (see Cohen, 1988). In a study reported by Burnette (1999) that used similar variables to predict grandparents' emotional well being, she estimated a medium to large effect size of .25 to calculate statistical power. Thus, it is believed the effect size used in this study to calculate statistical power is a conservative estimate.

design was presented as well as a description of how the study sample was selected. The section on measurements identified and described each study variable.

As the NSCAW data were collected via a complex survey design, special analytical considerations relevant to the utilization of NSCAW statistical weights were discussed and informed data analysis plans. As a means of showing the sample characteristics prior to performing statistical adjustments to estimate population parameters, it was decided that the results of the analyses would be presented based on "unweighted" and "weighted" data, separately. The chapter concluded with a review of the plan for data analysis that accompanied each research question and hypothesis. The treatment of missing data, statistical power, and regression diagnostics are presented in the Appendices of this study.

CHAPTER V

FINDINGS

The study findings are reported in six sections. Section I contains a descriptive analysis of the study control variables grouped as 1) grandparent demographic/resources and 2) grandchild demographic/caregiver demand characteristics. Sections II and III report on the independent variables which address 1) how grandparents characterize their neighborhoods in terms of "perceived neighborhood risk," and 2) self-reported alcohol use and drug misuse among grandparents designated as "permanent caregivers."[9] In Section IV, a series of analyses report SF-12 MCS aggregated standardized measures that characterize the dependent variable of emotional well being of grandparents raising their grandchildren. In addition, SF-12 MCS group mean comparisons are reported between the U.S. general population norms and grandparents raising grandchildren by age and gender categories. In Section V, a series of bivariate analyses are used to report the relationship between grandparent emotional well being and the study variables which informed subsequent multivariate regression analyses. Section VI reports a series of multivariate analyses and, together with the previous section, present data to answer the research questions that guided this study.

In most sections, findings are reported in two formats, i.e., 1) analyses of the unweighted sample data and 2) NSCAW survey design-based statistical adjustments made to estimate population parameters. Study findings were reported in these two formats to explicate the sample characteristics prior to performing statistical adjustments

[9] The NSCAW only surveyed "permanent caregivers" on their use of AOD. However, the NSCAW survey items used to derive the measure of "perceived neighborhood risk" were administered to all "permanent" and "non-permanent" caregiving grandparents.

to estimate population parameters. However, the population estimates will be the primary source of data used to inform the research questions and hypotheses that guided this study.

DESCRIPTIVE CHARACTERISTICS OF GRANDPARENTS AND THE GRANDCHILDREN IN THEIR CARE

Research Question

What are the demographic characteristics of grandparents raising grandchildren within the U.S. child welfare system?

This section reports the characteristics of the study sample in terms of grandparent demographic/resource and grandchild demographic/caregiver demand domains (Table 5.1). Descriptive data on the independent and dependent study variables are presented in a separate section. Unless otherwise specified, the term "grandparents raising grandchildren" refers only to the target population of grandparents in this study.

Grandparent Demographic/Resource Domain Characteristics

Grandparents who are the primary caregivers of their grandchildren make up 8.5% (465) of all primary caregivers (5,501) within the NSCAW Wave I unweighted CPS sample. The 5,501 caregivers are a nationally representative sample of an estimated child welfare population size of 2,387,476 primary caregivers of children in the United States.[10] The population size estimate was derived by applying the national statistical weight (NANALWT Wave I) to the NSCAW CPS sample of primary caregivers based on the procedures outlined in Dowd et al. (2003).

[10] It is important to emphasize that this population estimate does not include LTFC caregivers.

While grandparents who are the primary caregivers of their grandchildren make up 8.5% of the NSCAW CPS sample (unweighted), it is estimated that this group of surrogate parents represent 5.1% (120,866) of the CPS population of primary caregivers of children. The 95% confidence interval (CI) is 92,634 - 148,979 or approximately 3.9% - 6.2% of the population estimate (adjusted SE = .006) represented by the NSCAW CPS sample.

Table 5.1 shows that 96.5% of grandparents, who are the primary caregivers of their grandchildren, are female and the majority (55.2%) of all grandparent caregivers are 55 years of age or younger. Unfortunately, the NSCAW General Use data set does not allow for a more thorough description of age among these surrogate parents beyond the categories of age groups identified in Table 5.1. However, as Table 5.1 shows, there is a substantive degree of age variation among grandparents raising grandchildren: as slightly more than 1% are within the 26-35 age group (upper limit of 95% population CI is 2.4%), and approximately 45% are over 55 years of age.

Grandparents who endorsed the race category White (Non-Hispanic) make up the largest proportion (55.7%) of this population of grandparents raising grandchildren. Thirty-one percent (31.3%) of grandparents raising grandchildren endorsed Black (Non-Hispanic), 8.3% reported a Hispanic ethnic origin, and 4.6% were identified as belonging to the racial group "Other Non-Hispanic." There are limitations to which the diversity of race/ethnic categories in the U.S. can be further described in Table 5.1 given the available data within the NSCAW General Use data set.

Among grandparents raising grandchildren, 87.1% have a high school level of education or less. It is estimated that approximately 41.8% of grandparents raising grandchildren have not completed high school (or equivalent), 45.4% possess a high school diploma or the equivalent, and 12.9% have attained an associate's degree or higher. Approximately 33.7% of grandparents raising grandchildren are employed and 56.7% reside within families with a total annual household income below $20,000 (16% report $40,000 and higher). An estimated 42.5% of grandparents raising grandchildren are married or living with a significant other (partnered). In addition, 52.8% of grandparents raising grandchildren reported that a secondary caregiver for the grandchild(ren) resided within their household.

The SF-12 PCS (physical health measure) group mean among grandparents raising their grandchildren (43.59, SD = 15.41) was lower than the national norm (50.12, SD= 9.45). This difference in group means between the U.S. general population and grandparents raising their grandchildren was statistically significant ($p < .001$). According to the SF-12 User's Manual, PCS scores $\geq$ 1 SD below the standardized mean is indicative of significant poor physical conditions (e.g., stroke, angina, diabetes with heart disease) and individuals with a PCS of .5 below the national norm report moderate physical health problems (Ware, Kosinski, Turner-Bowker, & Gandek, 2002). It is estimated that approximately 42% and 37% of PCS scores among grandparents raising grandchildren are $\geq$ .5 SD and $\geq$ 1 SD below the national norm, respectively. However, as Table 5.1 shows, the 50th percentile PCS score among grandparents raising grandchildren is 49.0 and the relatively large SD (15.41) is an indicator that greater

variation in health status characterizes this subgroup of surrogate parents relative to the national norms.

The NSCAW data distinguishes between "permanent" and "non-permanent" caregivers (see Chapter IV). It is estimated that "non-permanent" caregivers make up 69.8% (72,512) of grandparents raising grandchildren in the CPS child welfare population (not including the LTFC caregivers). A series of bivariate analyses compared the "permanent" to the "non-permanent" caregivers on each study variable; these results are reported later in this chapter (Table 5.15).

Table 5.1
Grandparent Demographic/Resource and Grandchild Demographic/Caregiver Demand Characteristics

	Unweighted Sample (n = 465)[2a]					Population Estimates[1] (N = 120,866)[2b]					
Variable	**%[3]**	**M[4]**	**SD**	**SE[5]**	**95% CI[6]**	**%**	**M**	**SD[7]**	**SE**	**Deff[8]**	**95% CI**
Grandparent Level											
Gender										5.226	
Female	96.56	-	-	.008	94.47- 98.02	96.46	-	-	.024		91.76 - 100.00
Age in Years		3.04 (3.00)	.802	.037	2.97-3.12		3.25 (3.00)	.931	.085	3.848	3.08 - 3.42
26-35	1.73	-	-	.006	-	1.04	-	-	.007		-
36-45	24.89	-	-	.020	-	17.35	-	-	.036		-
46-55	40.67	-	-	.023	-	36.79	-	-	.055		-
>55	32.68	-	-	.022	-	44.82	-	-	.061		-
Race/Ethnicity		-	-	-	-		-	-		3.088	-
Black Non-Hispanic	34.62	-	-	.022	30.30- 39.14	31.34	-	-	.052		31.24 - 41.54
White Non-Hispanic	46.88	-	-	.023	42.27- 51.53	55.71	-	-	.057		55.60 - 66.91
Other Non-Hispanic	6.55	-	-	.011	4.40-9.08	4.62	-	-	.015		1.72 - 7.52
Hispanic	12.04	-	-	.015	9.22 - 15.35	8.33	-	-	.026		3.23 - 13.43
Marital/Partnered Status[9]										3.925	
Married/Partnered	55.27	-	-	.023	50.62- 59.85	42.53	-	-	.054		31.93 - 53.13

Table 5.1
Continued

Variable	Unweighted Sample					Population Estimate					
	%	M	SD	SE	95% CI	%	M	SD	SE	Deff	95% CI
Education (Highest Degree Attained)		1.93 (2.00)	.813	.038	1.85 - 2.00		1.80 (2.00)	1.076	.131	6.888	1.54 - 2.06
(1)No High School Diploma/Equivalent	28.60	-	-	.021	-	41.76	-	-	.061		-
(2)High School Diploma/Equivalent	57.20	-	-	.023	-	45.37	-	-	.056		-
(3)Associate (Junior/Vocational College)	8.82	-	-	.013	-	5.50	-	-	.018		-
(4)Bachelor	3.87	-	-	.009	-	5.71	-	-	.044		-
(5)Post-Bachelor	1.51	-	-	.006	-	1.67	-	-	.012		-
Employment										3.328	
Employed	51.18	-	-	.023	46.54- 55.81	33.65	-	-	.048		24.25 -43.05
Total Household Annual Income		3.04 (3.00)	1.378	.066	2.91 - 3.17		2.69 (2.00)	1.630	.175	5.305	2.35 - 3.03
(1)0-9,999	13.04	-	-	.016	-	17.28	-	-	.050		-
(2)10,000-19,999	29.52	-	-	.022	-	39.38	-	-	.062		-
(3)20,000-29,999	21.51	-	-	.012	-	15.87	-	-	.032		-
(4)30,000-39,999	12.13	-	-	.016	-	11.51	-	-	.033		-
(5)40,000 and greater	23.80	-	-	.020	-	16.00	-	-	.049		-
Presence of Secondary Caregiver in Home										4.694	
Yes	58.76	-	-	.024	53.96-63.43	52.75	-	-	.062		40.60 -64.90

Table 5.1
Continued

Variable	Unweighted Sample					Population Estimate					
	%	M	SD	SE	95% CI	%	M	SD	SE	Deff	95% CI
Permanent/Non-Permanent Caregiver Status										4.388	
Permanent	31.40	-	-	.022	27.20- 35.83	40.22	-	-	.057		29.02- 51.42
Social Support (Satisfied/ Dissatisfied)[10]										2.337	
Satisfied	96.58	-	-	.015	92.19- 98.89	96.16	-	-	.028		90.66- 100
Health Status[11]		45.82 (50.00)	11.828	.561	44.72- 46.93		43.59 (49.00)	15.407	1.764	5.820	40.70- 46.48
Child Level											
Age in Years		4.63 (3.00)	4.473	.207	4.22 - 5.03		6.16 (6.00)	5.303	.469	3.637	5.24 - 7.08
< 1	25.38	-	-	-	-	11.30	-	-	-		-
1	13.12	-	-	-	-	9.65	-	-	-		-
2	6.24	-	-	-	-	7.66	-	-	-		-
3	6.67	-	-	-	-	6.72	-	-	-		-
4	3.66	-	-	-	-	2.85	-	-	-		-
5	7.10	-	-	-	-	11.25	-	-	-		-
6 to 10	24.09	-	-	-	-	30.78	-	-	-		-
11 to 13	10.32	-	-	-	-	14.92	-	-	-		-
≥ 14	3.44	-	-	-	-	4.87	-	-	-		-

Table 5.1
Continued

Variable	Unweighted Sample					Population Estimate					
	%	M	SD	SE	95% CI	%	M	SD	SE	Deff	95% CI
Years in Grandparent Home		1.77 (.500)	2.728	.127	1.52 - 2.02		2.73 (1.00)	3.864	.351	3.837	2.04 - 3.42
Less than 1 year	66.20	-	-	-	-	43.49	-	-	-		-
1.0 to 1.9	7.30	-	-	-	-	12.80	-	-	-		-
2.0 to 2.9	5.39	-	-	-	-	7.71	-	-	-		-
3.0 to 3.9	4.09	-	-	-	-	7.13	-	-	-		-
4.0 to 4.9	3.23	-	-	-	-	6.08	-	-	-		-
≥ 5	13.79	-	-	-	-	22.79	-	-	-		-
Physical Health		3.95 (4.00)	.983	.046	3.86 - 4.04		3.97 (4.00)	1.125	.095	3.311	3.78 - 4.16
(1)Poor	1.29	-	-	.005	-	0.96	-	-	.006		-
(2)Fair	6.90	-	-	.012	-	7.13	-	-	.028		-
(3)Good	22.63	-	-	.019	-	18.71	-	-	.037		-
(4)Very Good	34.27	-	-	.022	-	40.30	-	-	.061		-
(5)Excellent	34.91	-	-	.022	-	32.90	-	-	.052		-
Behavior/Emotional[12]		1.64 (1.00)	.900	.053	1.53 - 1.74		1.66 (1.00)	1.093	.124	3.666	1.42 - 1.90
(1)Normal	39.66	-	-	.023	-	50.64	-	-	.058		-
(2)Borderline	4.31	-	-	.009	-	4.73	-	-	.037		-
(3)Clinical	17.46	-	-	.018	-	23.61	-	-	.050		-
Too Young for CBCL Testing (<2 years)	38.58	-	-	.023	-	21.01	-	-	.038		-

Table 5.1
Continued

Variable	Unweighted Sample %	M	SD	SE	95% CI	Population Estimate %	M	SD	SE	Deff	95% CI
Number of Children in Household		2.30 (2.00)	1.283	.059	2.18 - 2.42		2.30 (2.00)	1.796	.123	2.182	2.06 - 2.54
1	35.48	-	-	-	-	32.76	-	-	-		-
2	26.02	-	-	-	-	29.49	-	-	-		-
3	20.86	-	-	-	-	21.92	-	-	-		-
4	8.39	-	-	-	-	6.78	-	-	-		-
≥ 5	9.25	-	-	-	-	9.06	-	-	-		-

1. All population estimates were calculated using the following Stata v8.0 *svyset* commands: [probability weight=NANALWT(wave 1)]; [strata = 1]; and [primary sampling unit = NSCAWID].
2a. There are 465 grandparents who are the primary caregivers of their grandchildren in the sample. However, because of missing data, the sample size is not 465 uniformly across the analyses. The n for each variable in Table 5.1 can be readily identified by referencing unweighted "non-missing data" in Appendix B.
2b. The unweighted sample represents an estimated population size of 120,866 grandparents who are the primary caregivers of their grandchildren. The data shown are population estimates for each variable. However, the percentage of missing data on each variable in Table 5.1 can be readily identified by referencing weighted "non-missing data" in Appendix B.
3. A percentage is provided for each level of every variable. When the variable is dichotomous, only descriptive statistics are provided for one level as recommended by Rubin & Babbie (1997) regarding table designs.
4. "M" refers to mean and the median is presented in parenthesis. For example, the mean of grandparent *health status* is 45.82 and the median for this variable is (11.83).
5. The "unweighted sample" SEs are based on an assumption that the data collection method was SRS. The population SEs take into account the complex survey design (stratification, clustering, and over-sampling of under-represented groups in the child welfare population). The SEs (SE) calculated for all proportions are based on nominal and categorical variables are based on a binomial distribution and the confidence intervals were derived as described in StataCorp (2003b, Vol. I., pp. 164 – 170) and StataCorp (2003c, pp. 47 - 69). The Stata 8.0 output SE, for population estimates, was multiplied by 1.2 based on a recommendation by Dr. Elliot Smith, statistician at Cornell University, to reasonably compensate for the absence of a more precise strata variable only available in the NSCAW "Restricted Versions" Data sets.
6. The 95% confidence interval (CI) (and point estimates) for the unweighted sample is based on the calculation of SE with an assumption of SRS. As the population estimates do not assume SRS, comparisons between the data within the "unweighted sample" and "population estimate" columns are of interest.
7. Estimate of the population SD (sigma). Sigma = (SE of population mean) x square root [(number of observations)/design effect]
8. Deff is the NSCAW estimated survey design effect. The design effect is estimated as the design-based variance/variance had the survey used SRS.
9. This is a dichotomous variable, i.e., Married/Partnered vs. Not Married/Partnered.
10. The sample size for this variable is 146. Only non-permanent caregivers were surveyed on *perception of social support*.
11. Grandparents' health status was measured by the SF-12 PCS. In this study, the internal consistency of the SF-12 PCS was alpha = .85.
12. The percentages reference the four levels of *behavior* (including child too young for testing). However, the mean/median and 95% CI was calculated using only three levels which did not include cases where child was less than 2 years of age.

In addition, only "permanent" caregivers were administered the standardized NSCAW social support module. Therefore, among "permanent" caregiving grandparents, Table 5.1 shows that 96.2 % reported satisfaction (compared to not satisfied) with their level of perceived social support.

Grandchild Demographic/Caregiver Demand Domain Characteristics

Table 5.1 shows the mean age (in years) of children in the care of their grandparents is 6.2 (median = 6.0) with a 95% CI of 5.4 - 6.9. Forty-nine percent of the children are age 5 or less, and approximately 21% of the children are 1 year of age or younger. Slightly over half (50.6%) of the children would be considered "school-aged," ($\geq 1^{st}$ grade) and approximately 20% are in the middle or high school age range ($\geq$11 years of age).

Approximately 92% of the grandparents rated their grandchild's physical health as good, very good, or excellent; although 8% of the children were perceived by their caregivers to be in fair (7%) or poor (1.0%) physical health. Among children 2-18 years of age, CBCL ratings indicated that 64.1% of the children exhibited "normal" levels of behavior and emotional well being. However, 35.9% of the children were rated in the borderline (6.0%) or clinical (29.9%) range of problem behavior and emotional well being. Approximately 21% of all children are < 2 years of age and therefore were not assessed with the CBCL instrument.

Overall, the mean CBCL score is 1.66 (median = 1.0) with the upper 95% CI (1.90) at slightly below the "borderline" behavior rating. This "borderline" designation is not synonymous with any version of the Diagnostic and Statistical Manual of Mental

Disorders (APA, 1994) "borderline personality disorder" diagnostic category but rather indicates that the child's CBCL score is approaching the standardized "clinical" range for the CBCL.

Among this population of grandparents raising grandchildren, it is estimated that the mean number of children (not only grandchildren) living within their households is 2.3 with a 95% CI of 2.1 - 2.5. Table 5.1 shows that 32.8% of grandparents raising a grandchild reported that only one child was residing in their household. Over half of the grandparents raising grandchildren (51.4%) reported that 2 (29.5%) or 3 (21.9%) children lived in their household. And almost 16% of these surrogate parents reported that 4 (6.8%) or 5 (9.1%) children resided in the household. In addition, Table 5.1 shows that the mean number of years a grandchild had been with her/his grandparent was 2.7 with a 95% CI of 2.15 - 3.31; approximately 23% of grandchildren had been in their grandparent's care for 5 years and longer.

Unweighted Sample & Population Estimates: Patterns of Observations

In reviewing Table 5.1, the following should be kept in mind: 1) the point estimates are modified by an application of the national weights to the sample and 2) SEs are adjusted upward when the NSCAW sampling design (clustering, stratification, and oversampling) is factored into the analyses. Furthermore, the design effect of the NSCAW is consistently above one (unity) for each analysis (see footnote 8 in Table 5.1). NSCAW design effect ratios above unity indicate that more variance characterizes the population estimate compared to the unweighted sample estimate.

Table 5.1 shows that the child's "age in years" using the unweighted sample mean is 4.6 (median = 3.00; SD = 4.5) while the population mean estimate is 6.2 (median = 6.0; SD = 5.3). This difference occurs because the NSCAW unweighted sample over-represents children < 1 year of age and the probability weights adjust the population estimates to approximate their proportion in the child welfare population.

DESCRIPTIVE SUMMARY OF AOD CONSUMPTION AND PERCEIVED NEIGHBORHOOD RISK MEASURES

Research Question

What is the prevalence of alcohol use, drug misuse, and alcohol and/or drug misuse among grandparents raising their grandchildren?

Types of Drugs Misused

Grandparents in this study were asked about their use of each drug identified in Table 5.2a. These data refer to past year prevalence rates, a statistic commonly reported in national drug and alcohol use studies (SAMHSA, 2001a). Per the NSCAW protocol, only grandparents designated as a "permanent caregiver" were administered the survey items used to derive the drug misuse variables and explains the reason for a marked reduction of the sample size from 465 to 143.[11]

No "permanent" grandparent caregivers met the diagnostic criteria for drug dependence, based on the CIDI drug dependence module,[12] and none reported the

[11] As noted in Chapter IV, based on the NSCAW design, non-permanent caregivers were not administered several survey modules, including the CIDI and social support questionnaire. The reason for the decrease in the sample size is not related to using the NSCAW General Use Data set, but a function of the NSCAW researcher/administrative decision not to survey "non-permanent caregivers." The AOD variables were derived from CIDI items.

[12] Interestingly, the NSCAW did not measure the presence of any diagnostic category of drug "abuse." Attempting to modify the CIDI to estimate the presence of an "abuse" diagnostic category would have questionable psychometric validity and therefore the term "misuse" is used. It is emphasized that drug "misuse" as defined in this study is not to be interpreted as drug "abuse."

(mis)use of amphetamines, hallucinogens, or heroin. Table 5.2a shows that analgesics were the drugs misused by the largest number of grandparents (10.84%), followed by tranquilizers (5.53%), sedatives (1.89%), marijuana (1.83%), and cocaine (1.27%).

Table 5.2a: Percent of Grandparents Who Misused a Drug by Drug Type[1]
Past Year Prevalence

Drug Type	Unweighted Sample (n = 143)		Weighted Sample Population Estimates N = 48616			
	% Yes	SE	% Yes	SE	Deff	95% CI (90% CI)
Sedatives [e.g., Seconal, Halcion, Methaqualone]	2.10 (3)	.01	1.89	.02	1.41	.00-5.81 (.00-5.18)
Tranquilizers [e.g., Librium, Valium, Ativan, Xanex]	6.29 (9)	.02	5.53	.03	1.54	.03-11.03 (.59-10.47)
Amphetamines [e.g., Methamphetamine, Preludin, Dexedrine]	0.00	0	.00	.00	0	0
Analgesics [e.g., Tylenol with/without codeine, Demerol, Darvon, Percodan, Morphine, or Methadone]	4.20 (6)	.02	10.84	.09	8.14	.00-28.84 (.00-25.65)
Inhalants [e.g., Amylnitrate, Gasoline, spray paint, Nitrous Oxide]	0.70 (1)	.01	0.64	.01	.93	.00-2.60 (.00-2.29)
Marijuana or Hashish	2.10 (3)	.01	1.83	.02	1.43	.00-5.75 (.00-5.12)
Cocaine/Crack-Cocaine	0.70 (1)	.01	1.27	.02	1.84	.00-5.19 (.00-4.56)
Hallucinogens [e.g., LSD, PCP, Peyote, Ecstasy or Mescaline]	0.00	0	0.00	.00	0	0
Heroin	0.00	0	0.00	.00	0	0

1. The percentages by type of drug misused are not mutually exclusive. Three grandparents in the unweighted sample reported the misuse of two drugs and will be addressed later in this section.
2. The 95% CI for "Misuse of one or more of the above drugs," assuming SRS is 7.66% - 18.92% with an estimate of 13.29%. The 90% CI is 8.57% – 18.00%

Drug Consumption Study Variables:

Drug Misuse and Category of Drug Misuse

Table 5.2b shows that 80.8% of grandparents raising grandchildren in this population did not misuse any of the drugs listed in Table 5.2a. Table 5.2b shows that while 16.7% of all grandparents reported misusing a prescription drug (any type), 19.2% reported misusing one or more drugs listed in Table 5.2a (with the exception of an amphetamine, hallucinogen, and heroin which no grandparent reported). No grandparent reported the misuse of a prescription *and* an illicit drug.

Table 5.2b:Percentage of Grandparents Who Misused a Drug by Category of Drug Past Year Prevalence

Category of Drug	Unweighted Sample (n = 143)			Weighted Sample Population Estimates N = 48616			
	% Yes	SE	95% CI (90% CI)	% Yes	SE	Deff	95% CI (90% CI)
Misuse of Any Type of Prescription Drug[1]	10.49 (15)	.03	5.41-15.57 (6.23-14.75)	16.70	.09	5.68	.00 - 34.35 (1.90-31.52)
Misuse of an Illicit Drug[2]	2.80 (4)	.01	.06-5.53 (.51-5.09)	2.47	.02	1.32	.00 - 6.00 (.00-5.76)
No Drug Misuse	86.71 (124)	.04	62.07-77.37 (63.31-73.13)	80.83	.09	5.08	63.19-98.47 (66.02-95.64)
Total	100.00 (143)			100			
Misuse of Any (one or more) of the following drugs: (Sedatives, Tranquilizers, Analgesics, Inhalants, Marijuana/Hashish, or Cocaine/Crack-Cocaine)	13.29 (19)	.03	7.66- 18.92 (8.57-18.00)	19.17	.08	5.09	3.49- 34.85 (6.01-32.33)

1. Sedatives, Tranquilizers, & Analgesics; 2. Inhalants, Marijuana/Hashish, or Cocaine/Crack-Cocaine.

Alcohol Use

Table 5.3 shows the population estimate of alcohol use among permanent caregiving grandparents is 16.1%. Three grandparents endorsed the category of "4-10 drinks as the most alcohol consumed on any single day during the previous 12 months" and were collapsed into the 1-3 drinks category. Only one grandparent met the diagnostic criteria for alcohol dependence based on the CIDI and the NSCAW did not include a measure for the diagnostic category of alcohol "abuse."

Table 5.3: Percentage of Grandparents who Used Alcohol Past Year Prevalence

Variable	Unweighted Sample n = 142	Population Estimate N = 48,616
Alcohol Use		
Yes (%)	20.42	16.08
SE	.03	.05
Deff	NA	1.99
95% CI	13.71 – 27.13	6.28 - 25.88
90% CI	14.80 – 26.04	7.86 - 24.30

Drug Misuse and Alcohol Use

Table 5.4 shows the percentage of grandparents within four mutually exclusive levels of the "drug misuse and alcohol use" variable constructed for this analysis.[13] An estimated 73.9% of grandparents raising grandchildren in this population did not misuse a drug or use alcohol in the 12 months prior to responding to the survey (past year prevalence rate). However, 2.1% have misused a drug and also used alcohol during the past year. In addition, an estimated 10.1% of grandparents misused a drug but did not

[13] The label "alcohol use and drug misuse" does not imply that a grandparent simultaneously consumed the two substances on any one day or that s/he was under their combined influence at any time. This study does not present data on the simultaneous consumption of alcohol and drugs among grandparents raising grandchildren.

use alcohol, and approximately 14% used alcohol but did not misuse a drug. In total, approximately 32.0% grandparents used alcohol and/or misused at least one drug.[14]

Table 5.4: Percentage of Grandparents by Level of Drug Misuse and Alcohol Use Past Year Prevalence

Drug Misuse and Alcohol Use Variable	Unweighted Sample n = 142	Population Estimate N = 48,616
Drug Misuse, Alcohol Use		
Yes (%)	2.82	2.09
SE	.03	.02
Deff	NA	1.47
95% CI	.06 - 5.57	.00 - 6.01
90% CI	.51 - 5.12	.00 -5.38
[n]	[4]	
Drug Misuse, No Alcohol Use		
Yes (%)	9.86	10.05
SE	.03	.04
Deff	NA	1.75
95% CI	4.90- 14.82	2.21- 17.89
90% CI	5.70 - 14.02	3.47- 16.63
[n]	[14]	
Alcohol Use, No Drug Misuse		
Yes (%)	17.61	13.98
SE	.03	.05
Deff	NA	2.01
95% CI	11.27- 23.95	4.18 - 23.78
90% CI	12.30 - 22.92	5.75 - 22.21
[n]	[25]	
No Alcohol Use, No Drug Misuse		
Yes (%)	69.72	73.87
SE	.04	.06
Deff	NA	2.12
95% CI	62.07 - 77.37	62.11 - 85.63
90% CI	63.31 - 76.13	64.00 - 83.74
[n]	[99]	
Total	100.01	99.99
	[142]	

[14] In the unweighted sample, three grandparents had missing data on both drug misuse and alcohol use. Another grandparent reported drug misuse but had missing data on the survey item about alcohol use. Thus, 4 grandparents have missing data on alcohol use and 3 grandparents have missing data on drug misuse. As Table 5.4 shows, only 142 grandparents could be used to report data on the alcohol use and drug misuse variable.

Table 5.4, Continued

Alcohol Use and/or Misuse of one or more Drugs		
Yes (%)	30.77[1]	32.04[1]
SE	.04	.09
Deff	NA	3.72
95% CI	23.11 - 38.43	14.44 - 49.68
90% CI	24.36 - 37.18	17.24 - 46.85
[n]	[44]	

1.NOTE: Unweighted n = 143 compared to the unweighted n used across the 4 mutually exclusive levels of the variable "alcohol and drug misuse."

Perceived Neighborhood Risk

Table 5.5 shows the mean population estimate of perceived neighborhood risk is 1.33 (median = 1.29) with a 95% CI of 1.21-1.45. The data show that the majority of grandparents perceive relatively low levels of risk in their neighborhoods although the range is wide (1-3). An estimated 11.9% of the grandparents report perceived neighborhood risk index scores > 1 SD above the group mean.

Table 5.5
Descriptive Statistics of Perceived Neighborhood Risk

Variable	Unweighted Sample (n=444)[1]	Population Estimates
Perceived Neighborhood Risk		
Mean	1.28	1.33
SD	.40	.53
SE	.02	.06
95% CI	1.24 - 1.32	1.21 - 1.45
Deff	NA	5.72
Range	1-3	1-3

1. A listwise deletion method was used to arrive at the sample size of 444.

EMOTIONAL WELL BEING OF GRANDPARENTS RAISING GRANDCHILDREN: DESCRIPTIVE SUMMARY AND NATIONAL NORM COMPARISIONS

Research Question

How does the emotional well being of grandparents raising grandchildren compare to the general U.S. population by age and gender groups?

Table 5.6a shows that the SF-12 MCS group mean population estimate among grandparents raising their grandchildren is 52.84 with a 95% CI of 50.73 – 54.95. Table 5.6b shows the estimated population MCS group mean of grandparents raising grandchildren is significantly higher than that of the U.S. general population standardized group mean of 50.04 [$t(2821)=5.40$, $p < .001$]. In addition, MCS scores among grandparents raising their grandchildren are higher across each quartile compared to the national MCS normative data (Table 5.6b).

Table 5.6a: SF-12 Mental Component Summary (MCS) Unweighted Sample and Population Estimate Group Means Among Grandparents Raising Grandchildren

	Unweighted NSCAW Sample (n=444)	Weighted NSCAW Sample Population Estimate
Mean	50.91	52.84
SD	9.87	12.12
SE	.469	1.08
95% CI	49.99-51.83	50.73-54.95
Deff	NA	3.484
Range	20-70	20-70

Table 5.6b: Comparison of SF-12 Mental Component Summary (MCS) Group Means Between U.S. Population Norms and Grandparents Raising Grandchildren

	General U.S. Population (n=2,379)	Grandparents Raising Grandchildren Population Estimates (Weighted NSCAW Sample)	p
Mean	50.04	52.84	<.001
25th Percentile	45.13	49.00	
50th Percentile	52.85	57.00	
75th Percentile	57.30	60.00	
SD	9.59	12.12	
SE	*	1.08	
Range	10-70	20-70	
Alpha	**	.72[1]	

NOTE: p= level of statistical significance between group means. * = Not reported. ** See Chapter IV for review. 1. Cronbach's Alpha based on unweighted data = .75

Table 5.7 shows that at each quartile, and as a whole, grandparents raising grandchildren have higher MCS group mean scores when same gender comparisons are made with the MCS national norms. Grandmothers raising their grandchildren have a significantly higher MCS group mean (52.58) compared to females in the U.S. general population (49.42) ($t(1759)=5.45$, $p<.001$). Table 5.7 also shows that grandfathers raising their grandchildren have a significantly higher MCS group mean (60.24) compared to males in the U.S. general population (50.72) ($t(1010)=3.96$, $p<.001$). Furthermore, grandfathers who are the primary caregivers of their grandchildren report markedly high levels of emotional well being across all quartiles compared to the MCS national normative data.

Table 5.7: Comparison of SF-12 Mental Component Summary (MCS) Group Means By Gender Between U.S. Population Norms and Grandparents Raising Grandchildren

	Female			Male		
	General U.S. Population (n=1,332)	Grandparents Raising Grandchildren (n=429)	p	General U.S. Population (n=997)	Grandparents Raising Grandchildren (n=15)	p
Mean	49.42	52.58	<.001	50.72	60.24	<.001
25th Percentile	43.78	49.00		46.16	61.00	
50th Percentile	51.94	57.00		53.53	61.00	
75th Percentile	56.85	60.00		57.82	61.00	
SD	9.80	12.22		9.31	2.46	
SE	*	1.12		*	.65	
Range	11-70	20-70		14-70	50-61	

NOTE: p= level of statistical significance between group means. * = Not reported

Table 5.8a through Table 5.8d compares MCS group means the U.S. general population and grandparents raising grandchildren by age categories. In this study, MCS group mean comparisons between the U.S. general population and grandparents raising grandchildren by *similar* age categories were used because the NSCAW General Use Data Set recoded years of age into ordinal-level categories that do not correspond exactly to the six age groups for which standardized MCS norms are reported in the SF-12 User's Manual (Ware, et al., 2002).

Table 5.8a shows the MCS group means for the 18-34 age-group within the U.S. general population and the 26-35 age-group among grandparents raising grandchildren are 49.18 and 53.52, respectively. The difference between these age-group MCS group means is not statistically significant ($t(642)=1.26$, $p=.210$), however, a true comparison between these group means is difficult to make because 1) the 18-34 age-group range

collapses MCS scores across a developmentally diverse age-group compared to a more restricted range of ages, i.e., the 26-35 age-group; 2) only females make up the grandparent raising grandchildren 26-35 age-group; and 3) there are only 8 grandparents in this age range (26-35).

Table 5.8a: Comparison of SF-12 Mental Component Summary (MCS) Group Means By Similar Age Groups Between U.S. Population Norms and Grandparents Raising Grandchildren: 18-34 vs. 26-35

	General U.S. Population	Grandparents Raising Grandchildren	
		Population Estimates (Weighted NSCAW Sample)	
	Ages 18-34	Ages 26-35	
	(n=636)	(n=8)	p
Mean	49.18	53.52	.210
25th Percentile	44.48	52	
50th Percentile	51.81	56	
75th Percentile	56.43	56	
SD	9.74	8.03	
SE	*	2.33	
Range	11-62	41-61	

NOTE: p= level of statistical significance between group means. * = Not reported

Table 5.8b and 5.8c show very similar age-group MCS mean comparisons between grandparents raising grandchildren and the U.S. general population. Table 5.8b shows that grandparents among the 36-45 age-group have a mean MCS of 50.37, slightly higher than the mean MCS for the 35-44 age-group (50.10) reported for the U.S. general population, but not statistically different ($t(597)=.255$, $p=.799$). In addition, there is no statistically significant MSC group mean difference between grandparents within the 46-

55 age-group (50.29) compared to the 45-54 age-group (50.45) within the U.S. general population (t(501) = .144, p = .886).

Table 5.8b: Comparison of SF-12 Mental Component Summary (MCS) Group Means By Similar Age Groups Between U.S. Population Norms and Grandparents Raising Grandchildren: 35-44 vs. 36-45

	General U.S. Population	Grandparents Raising Grandchildren Population Estimates (Weighted NSCAW Sample)	
	Ages 35-44 (n=487)	**Ages 36-45 (n=112)**	**p**
Mean	50.10	50.37	.799
25th Percentile	45.67	44	
50th Percentile	52.24	54	
75th Percentile	56.83	59	
SD	8.62	14.98	
SE	*	2.22	
Range	20-65	24-69	

NOTE: p= level of statistical significance between group means. * = Not reported

Table 5.8c: Comparison of SF-12 Mental Component Summary (MCS) Group Means By Similar Age Groups Between U.S. Population Norms and Grandparents Raising Grandchildren: 45-54 vs. 46-55

	General U.S. Population	Grandparents Raising Grandchildren Population Estimates (Weighted NSCAW Sample)	
	Ages 45-54 (n=324)	**Ages 46-55 (n=179)**	**p**
Mean	50.45	50.29	.886
25th Percentile	45.30	45	
50th Percentile	53.30	54	
75th Percentile	57.83	59	
SD	9.55	15.42	
SE	*	2.14	
Range	18-67	20-70	

NOTE: p= level of statistical significance between group means. * = Not reported.

Table 5.8d shows standardized MSC means among three age groups ≥ 55 years of age within the U.S. general population. The only similar age-group within the NSCAW General Use Data Set is > 55 and the MSC mean for this group is 55.78, which is significantly higher ($p < .001$) than each of the three age groups in Table 5.8d.

Table 5.8d: Comparison of SF-12 Mental Component Summary (MCS) Groups Means By Similar Age Groups Between U.S. Population Norms and Grandparents Raising Grandchildren: 55 Years of Age and Over

	General U.S. Population			Grandparents Raising Grandchildren	
				Population Estimates (Weighted NSCAW Sample)	
	3 Age-Group Norms			Ages > 55	
	55-64 (n=250)	65-74 (n=408)	≥ 75 (n=217)	(n=144)	p[1]
Mean	50.19	52.10	50.06	55.78	<.001
25th Percentile	46.39	47.06	40.48	52	
50th Percentile	53.14	55.31	53.53	58	
75th Percentile	57.49	58.91	58.89	61	
SD	9.82	9.53	10.94	7.38	
SE	*	*	*	1.15	
Range	13-65	19-70	22-69	26-67	

NOTE: 1. The MSC mean of 55.78 is significantly higher ($p < .001$) than each of the three age groups (55-64, 65-74; and ≥ 75) reported among the U.S. General Population. * = Not Reported.

AN EXAMINATION OF BIVARIATE RELATIONSHIPS BETWEEN EMOTIONAL WELL BEING AND PREDICTOR STUDY VARIABLES

Research Questions

Is perceived neighborhood risk a significant factor in predicting emotional well being among grandparents raising grandchildren?

Is alcohol use a significant factor in predicting the level of emotional well being among grandparents raising grandchildren?

Is drug misuse a significant factor in predicting the level of emotional well being among grandparents raising grandchildren?

Is alcohol use and/or drug misuse a significant factor in predicting the level of emotional well being among grandparents raising grandchildren?

In this section, bivariate relationships are reported between the emotional well being of grandparents raising grandchildren and each study variable shown in Table 4.4. Table 5.9 shows correlation coefficients that measure the relationship between grandparent emotional well being (SF-12 MCS scores) and metric-level study variables. Table 5.10 shows SF-12 MCS group means across levels of ordinal and categorical variables. The statistical relationship between grandparent emotional well being and several study variables measured on an ordinal scale are shown across both tables.

Bivariate Correlations

The population estimates in Table 5.9 show that higher levels of grandparent emotional well being is significantly associated with increasing grandparent age ($r(441) = .232$, $p = .011$) and parenting a child with lower levels of behavior/emotional problems ($r(444) = -.267$, $p = .040$). Table 5.9 shows that higher levels of emotional well being were associated with lower levels of perceived neighborhood risk ($r(426) = -.220$,

unadjusted p = .051, but not adjusted p = .104;) and higher levels of child physical health (r(443) = .151, unadjusted p = .045, but not adjusted p = .090). Though the adjusted data were not significant, it is noteworthy that the unweighted and population coefficients shown in Table 5.9 have the same directional sign.

Table 5.9: Bivariate Correlations Coefficients Between Grandparent Emotional Well Being Across Study Variables

Variable	Unweighted Sample n[1]	Population Estimate N[2]
Grandparent Level		
Perceived Neighborhood Risk	-.184** 428	-.220^[3]
GP Age	.129** 443	.223**
GP Education	.038 444	.011
Annual Household Income	.033 421	.014
GP Physical Health	.053 444	-.030
Grandchild Level		
Age	-.032 444	-.006
Years in Grandparent Care	.018 443	-.019
Child Physical Health	.012* 443	.151^
Behavior/Emotional Problem	-.232** 444	-.267*
Number of Children in Home	-.056 444	.006

^ p ≤ .10, * p≤ .05, ** p≤ .01
1.Pairwise deletion was used to address the missing data and the resulting "n" is listed below the correlation coefficient.
2.The N can be replicated by applying the NSCAW probability weight NANALWT Wave 1 to the pairwise "n" from the unweighted sample.
3.Determining statistical significance was based on standard error adjustments as described in Chapter IV.

Bivariate Group Mean Comparisons

Table 5.10 shows the emotional well being group mean by each level of the categorical and ordinal level study variables. Using population estimates, grandparents who did and did not misuse a drug did not differ significantly on emotional well being SF-12 MCS scores (48.00 vs. 52.21, $p = .54$), although a statistically significant difference was observed in the unweighted analysis (44.42 vs. 51.15, $p = .01$). Alcohol use is not significantly associated with emotional well being in the unweighted sample ($p = .49$) or population estimates ($p = .66$). In addition, the statistically significant relationship between alcohol use and/or drug misuse and emotional well being apparent in the unweighted sample ($p = .04$) fades to $p = .54$ after population adjustments are made.

Table 5.10 shows that grandfathers have significantly higher ($p < .01$) levels of emotional well being than grandmothers. In addition, grandparents who are not employed, compared to those who are employed, have significantly ($p = .05$) higher levels of emotional well being.

The relationship between race/ethnicity and grandparent emotional well being was statistically significant ($F(3, 441) = 2.63$, $p = .049$). As Table 5.10 shows, the group coded as "Other, Non-Hispanic" has the highest emotional well being group mean (56.9) and grandparents who endorsed "Black, Non-Hispanic" or "Hispanic Origin" have the lowest group means, i.e., 50.7 and 51.8, respectively. Post-hoc tests show a statistically significant difference in emotional well being between "Other, Non-Hispanic" and "Black, Non-Hispanic" grandparents raising grandchildren ($p = .025$). No other

statistically significant differences between emotional well being group means across levels of race/ethnicity were detected.

The bivariate relationship between emotional well being and levels of grandparent age and education are of particular interest when comparisons are made across Table 5.9 and 5.13. For example, as Table 5.9 suggests, the relationship between age and emotional well being among grandparents is positive and linear. However, Table 5.10 indicates this relationship may be curvilinear as the population estimates for emotional well being between the > 55 and 26-35 age groups did not differ significantly ($p = .386$). Unfortunately, the measurement scale for the age variable (NSCAW General Use Data recoded variable) is not metric and it was evident that emotional well being varied considerably within each of the four age level groupings.

In Table 5.9, the bivariate correlation coefficient does not indicate a statistically significant linear relationship between emotional well being and level of grandparent education ($r = .011$, $p = .923$). However, Table 5.10 shows that the emotional well being group mean markedly decreases among grandparents who have attained a "master's/doctorate" (49.0) compared to "bachelor" level of education (57.5); the difference is statistically significant ($p = .018$).

Finally, there is little variation across grandparents' social support ratings, and there is no evidence of a statistically significant relationship between this measure and the surrogate parent's emotional well being. Recall that the NSCAW only asked "permanent" caregivers about their perceived level of social support. Five (5) grandparents in the unweighted sample were "dissatisfied" compared to the remaining

permananet caregivers (141) who were "satisfied" with their perceived level of social support.[15]

Table 5.10: Means & Standard Deviations of Grandparent Emotional Well Being By Levels of Ordinal & Categorical Study Variables

Variable	Unweighted Sample[1]				Population Estimate			
Grandparent Level	n	Mean	SD	p (t/F)[2]	N[3]	Mean	SD	p[4] (t/F)
Alcohol Use								
Yes	29	48.97	11.33	.49	29	49.12	12.65	.66
No	113	50.51	10.46	(.70)	113	51.05	11.48	(.45)
Drug Misuse								
Yes	19	44.42	12.27	**.01**	19	48.00	13.49	.54
No	124	51.15	10.09	(2.63)	124	52.21	10.68	(.61)
Alcohol Use and/or Drug Misuse				**.04**				.54
Yes	44	47.46	11.38	(2.13)	44	49.54	13.81	(.62)
No	99	51.51	10.05		99	52.28	10.84	
GP Gender								
Female	429	50.69	3.48	**.01**	429	52.58	10.19	**<. 01**
Male	15	57.13	9.95	(2.50)	15	60.24	2.06	(5.97)
GP Marital Status								
Married/Partnered	246	51.18	9.26	.52	246	51.22	12.29	.16
Not Married/Partnered	198	50.57	10.60	(.65)	198	54.09	8.19	(1.40)
GP Employment								
Employed	226	50.25	10.36	.16	226	49.91	14.45	**.05**
Not Employed	218	51.58	9.32	(1.42)	218	54.33	7.57	(2.01)
Secondary Caregiver in Home								
Yes	249	50.96	9.77	.57	249	51.89	10.84	.37
No	168	50.39	10.16	(.56)	168	53.86	9.10	(.91)
Caregiver Status								
Permanent	145	50.43	10.64	.48	145	51.62	10.12	.36
Non-Permanent Caregiver	299	51.13	9.49	(.70)	299	53.72	9.68	(.93)

[15] In the analysis that shows the bivariate relationship between perceived level of social support and emotional well being, one grandparent who reported "satisfaction" had missing data on emotional well being.

Table 5.10, Continued

Variable	Unweighted Sample[1]				Population Estimate			
Grandparent Level	n	Mean	SD	p (t/F)[2]	N[3]	Mean	SD	p[4] (t/F)
Social Support								
Satisfied	140	50.63	10.56	.25	140	51.63	11.56	.95
Not Satisfied	5	45.00	12.79	(1.16)	5	51.27	8.94	(.07)
Race/Ethnicity								
Black, Non-Hispanic	149	50.33	10.35	.38	149	50.66	11.21	**.05**
White, Non-Hispanic	213	51.30	9.51	(1.03)	213	53.77	8.99	(2.63)
Other, Non-Hispanic	29	53.14	9.56		29	56.88	8.45	
Hispanic Ethnic Origin	53	49.72	10.06		53	51.83	12.31	
Grandparent Age								
26-35	8	52.0	6.81	**<.001**	8	53.52	8.05	**.01**
36-45	112	50.42	9.87	(7.10)	112	50.37	14.98	(3.85)
46-55	179	48.86	10.83		179	50.29	15.41	
> 55	144	53.81	7.99		144	55.78	7.37	
Education (Highest Degree)								
No High School Diploma (or equivalent)	128	50.52	10.62	44 (.95)	128	53.71	10.70	**< .001** (9.01)
High School (or equiv.)	253	51.04	9.37		253	51.59	13.40	
Associate/Voc. Degree	41	49.61	11.57		41	51.28	12.57	
Bachelor's Degree	15	55.20	4.63		15	57.53	3.09	
Master's/Doctorate	7	51.29	10.81		7	48.96	10.26	
Income								
0-9,999	55	48.62	10.34	.46	55	51.23	10.76	.77
10,000-19,999	125	51.54	9.93	(.91)	125	53.83	9.46	(.46)
20,000-29,999	89	50.17	10.49		89	51.64	14.41	
30,000-39,999	53	50.76	10.80		53	50.90	16.27	
40,000 or above	99	51.02	8.85		99	53.71	13.61	
Child Level								
Level of Behavior								
Normal	348	52.03	9.22	**<.001**	348	54.29	10.94	**.03**
Borderline	20	50.50	9.20	(12.81)	20	55.51	9.36	(3.40)
Clinical	76	45.87	11.36		76	47.47	10.97	

1.Listwise deletion.
2.If variable has more than two grouping levels, F-test was used to test statistical significance across group means.
3.The N can be replicated by applying the NSCAW probability weight NANALWT Wave 1 unweighted sample n.
4.Determining statistical significance was based on standard error adjustments as described in methods section.

Relevance of Findings to Research Questions

The bivariate analyses did not show a statistically significant relationship between the emotional well being of grandparents raising grandchildren and drug misuse, alcohol use, or alcohol use and/or drug misuse as hypothesized. In addition, while higher levels of perceived neighborhood risk were associated with lower levels of emotional well being, the statistical significance of the correlation dropped from $p = .051$ to $p = .104$ after adjustments were made to the standard error. Thus, evidence for the hypothesized relationship between perceived neighborhood risk and emotional well being among grandparents raising their grandchildren is limited. In addition, using the unweighted sample, emotional well being of grandparents was significantly associated with drug misuse ($p = .01$), alcohol use and/or drug misuse ($p = .04$) and perceived neighborhood risk ($p < .001$) in the direction predicted, these findings were not supported using the population estimates.

Exploratory Findings

A series of previously unplanned exploratory bivariate analyses were conducted to examine emotional well being by classification of the drug misused (e.g., prescription type vs. illicit) and combinations of alcohol use and drug misuse. The AOD groupings in the following exploratory analyses describe past year prevalence rates of AOD misuse among grandparents raising grandchildren as reported in a previous section of this study.

Table 5.11a shows emotional well being group means by mutually exclusive categories of prescription, illicit, and no drug misuse, i.e., the variable labeled "category of drug misuse" (see Chapter IV). While the population estimates indicate that

grandparents who misused an illicit drug have the lowest emotional well being group mean, substantive variation characterizes this measure (SD = 20.44). On balance, the data in Table 5.11a do not indicate significant differences in emotional well being for grandparents who misuse illicit or prescription-type drugs and those who did not (F(2, 140)= 1.37, p = .26).

Table 5.11b shows emotional well being group means across four mutually exclusive categories of drug misuse and alcohol use; a statistically significance difference is indicated (F(3, 138) = 4.83, p = <.01) for the variable labeled drug misuse and alcohol use (see Chapter IV). Grandparents who misused a drug and reported the use of alcohol in the previous 12 months have significantly lower levels of emotional well being compared to two other groups, i.e., grandparents who 1) only used alcohol (no drug misuse) and 2) did not report the misuse of a drug or alcohol use. Note that to create the grouping variable shown in Table 5.11b [i.e., mutually exclusive categories] one unweighted case was dropped from the analysis due to missing data on alcohol use).

Table 5.11a: Emotional Well Being Group Means by Category of Drug Misuse

Category of Drug Misuse	Unweighted Sample (n = 143)			Population Estimates	
	n	Mean (SD)	p[1]	Mean (SD)	p[2]
			.05		.26
Misuse of Any Type of Prescription Drug (Sedatives, Tranquilizers, & Analgesics) [A]	15	44.60 (11.36)		49.63 (9.76)	
Misuse of an Illicit Drug[B]	4	43.75 (17.29)		36.97 (20.44)	
No Drug Misuse[C]	124	51.15 (10.09)		52.21 (13.31)	
	Post-Hoc Tests			**Post-Hoc Tests**	
		A-B	.89	A-B	.33
		A-C	**.02**	A-C	.70
		B-C	.16	B-C	.18

1. (F(2, 140)=3.44, p = .035). 2. Statistical significance of F-test (F(2, 140)=1.37, p = .258).

Table 5.11b: Emotional Well Being Group Means by Drug Misuse and Alcohol Use

Drug Misuse and Alcohol Use	Unweighted Sample (n = 142)			Population Estimates	
	n	Mean (SD)	p[1]	Mean (SD)	p[2]
			.04		**<.01**
Drug Misuse and Alcohol Use[A]		44.00 (17.57)		31.12 (18.22)	
Drug Misuse, No Alcohol Use[B]		43.50 (10.95)		42.00 (14.08)	
Alcohol Use, No Drug Misuse[C]		49.76 (10.32)		51.84 (10.66)	
No Drug Misuse, No Alcohol Use[D]		51.51 (10.05)		52.28 (12.98)	
	Post-Hoc Tests			**Post-Hoc Tests**	
		A-B	.93	A-B	.24
		A-C	.31	A-C	**.01**
		A-D	.16	A-D	**.01**
		B-C	.07	B-C	.07
		B-D	**< .01**	B-D	.06
		C-D	.46	C-D	.89

1. Statistical significance of F-test (F(3, 138)=2.94, p =.035); 2. Statistical significance of F-test (F(3, 138)=4.83, p =.003).

Summary

The analyses do not support the hypothesized relationships between emotional well being and drug misuse, alcohol use, or alcohol and/or drug misuse among grandparents raising grandchildren (permanent caregivers). In addition, the findings provide limited evidence to support the hypothesized relationship between perceived neighborhood risk and grandparent emotional well being (both permanent and non-permanent grandparents). However, there were statistically significant bivariate relationships indicating that grandparent emotional well being is associated with grandparent gender, employment status, race/ethnicity, age, education, and grandchild's level of behavior/emotional problems.

A series of unplanned exploratory analyses examined emotional well being by "category of drug misuse" and "drug misuse and alcohol use" among grandparents raising grandchildren. There were no statistically significant mean differences in emotional well being across grandparents grouped by prescription-type drug misuse, illicit drug misuse, or no drug misuse. However, another analysis indicated that grandparents who misused a drug and reported the use of alcohol had statistically significant lower levels of emotional well being compared to 1) grandparents who only used alcohol (no drug misuse) and 2) those surrogate parents who reported no alcohol use or drug misuse.

EXPLORATORY MULTIVARIATE ANALYSES

The original aim of the multivariate analyses was to examine whether levels of perceived neighborhood risk and drug misuse were statistically significant predictors of emotional well being among grandparents raising grandchildren after statistically controlling for 1) grandparent demographic characteristics/resources and 2) grandchild demographic/caregiver demand characteristics. In light of the findings reported thus far, several exploratory questions emerged; as a result, the aims of the multivariate analyses were modified.

The first exploratory question was whether perceived neighborhood risk significantly interacted with another other study variable to impact levels of emotional well being among grandparents raising grandchildren after controlling for 1) grandparent demographic characteristics/resources and 2) grandchild demographic/caregiver demand characteristics. The reason this modification to the original aim of the analysis is

considered "exploratory" by this researcher is because the original plan was not to examine whether any study variable moderated the relationship between perceived neighborhood risk and emotional well being. The second exploratory question was whether levels of drug misuse and alcohol use (i.e., the variable shown in Table 5.11b) impacts levels of grandparent emotional well being after controlling for 1) grandparent demographic characteristics/resources and 2) grandchild demographic/caregiver demand characteristics.

Exploratory Research Question

Do grandparent demographic characteristics/resources or grandchild demographic/caregiver demand characteristics moderate the impact of perceived neighborhood risk on the emotional well being of grandparents raising grandchildren?

Multivariate Linear Regression Exploratory Findings

The hierarchical multivariate regression models presented in Table 5.12 (unweighted data) and Table 5.13 show the separate and cumulative impact of grandparent demographic characteristics/resources (Model 1), grandchild demographic/caregiver demand characteristics (Model 2), and perceived neighborhood risk (Model 3) on the emotional well being of grandparents raising their grandchildren. Table 5.13 (Model 4) and Figure 5.1 show evidence of a statistically significant interaction effect between perceived neighborhood risk and grandparent caregiver status (permanent/non-permanent) on emotional well being. Table 5.14 shows standardized regression coefficients that can be used to evaluate the relative importance of each variable entered into the regression model. The tables show multivariate analyses based on unweighted and weighted data in keeping with the format used thus far to present the

findings. However, a description of the findings is primarily grounded in the population estimates.

Table 5.13 shows that among the grandparent demographic and resource variables entered into Model 1, only gender, age, and race/ethnicity significantly effected the emotional well being of grandparents raising their grandchildren. Table 5.13 (Model 1) shows that grandmothers have significantly ($p < .001$) lower levels of emotional well being compared to grandfathers and those who endorsed "Other, Non-Hispanic" had significantly ($p = .005$) higher levels of emotional well being compared to "White, Non-Hispanic" grandparents.

Table 5.13 (Model 1) also shows that grandparents who are over 55 years of age have higher levels of emotional well being compared to the other three age groups; but only significantly higher than the surrogate parents within the 46-55 age group ($p = .024$). And while level of education was not significantly related to emotional well being, the regression coefficient that shows grandparents without a high school diploma (or equivalent) have lower levels of emotional well being than those with a bachelor's degree is noteworthy ($p = .065$). In addition, the pattern of data in Model 1 suggests that grandparents' emotional well being may have a curvilinear relationship with age and education.

Table 5.13 (Model 1) also shows that the presence of a secondary caregiver in the home, grandparent physical health, employment, marital/partner status, annual household income per child, or caregiver status (permanent vs. non-permanent) had no statistically significant main effect on the emotional well being of grandparents raising their

grandchildren. Model 1 shows that grandparent demographic characteristics and their resources accounted for 20.14% of the variance in the emotional well being scores of these surrogate parents; although only gender, age, and race/ethnicity were found to be statistically significant.

When grandchild demographics and caregiver demand characteristics are entered into the regression equation as shown in Model 2 (Table 5.13), only the regression coefficient for the grandchild's level of behavior and emotional problem is statistically significant ($p = .008$) among this block of variables. Model 2 shows that higher levels of child behavior and emotional problems negatively impacts grandparent emotional well being ($b = -3.585$) after adjusting for grandparent demographic/resource characteristics and child demographic/caregiver demand characteristics.

In Model 2 (Table 5.13), all age groups, except 36-45, had significantly lower levels of emotional well being compared to those over 55 years of age. And as observed in Model 1, the only race/ethnicity regression coefficient that was statistically significant shows that "Other, Non-Hispanic" grandparents have higher ($p = .001$) levels of emotional well being compared to White, Non-Hispanic grandparents. When child demographic/caregiver demand characteristics are added to grandparent characteristics and resources, an additional 10.60% of the variance in grandparent emotional well being is explained over Model 1.

In Model 3 (Table 5.13), the perception of neighborhood risk among grandparents is added to the regression equation. Model 3 shows that increasing levels of perceived neighborhood risk is related to decreasing levels of emotional well being of grandparent

raising their grandchildren after adjusting for the impact of grandparent demographic characteristics and grandchild characteristics and caregiver demands, although the relationship fails to achieve the threshold of statistical significance (b = -4.523, p = .099; unadjusted p = .048). Because the measurement of perceived neighborhood risk is not precise, this researcher commented on the relationship of perceived neighborhood risk and emotional well being in Model 3. In addition, Table 5.13 shows that the statistical significance and the directionality of grandparent gender, age, race/ethnicity, and grandchild level of behavior and emotional problems on grandparent emotional well being identified in Model 2 carried over to Model 3.

In Table 5.13 (Model 3) it is noteworthy that the regression coefficients indicate that increasing levels of emotional well being are related to higher levels of grandchild physical health (b = 1.771, p = .072) and lower levels of grandparent physical health (b = -.129, p = .094); although these relationships did not achieve the threshold of statistical significance. While the negative relationship between emotional and physical health among grandparents raising grandchildren appears puzzling, Minkler et al. (1992) reported that 92% of their sample of grandparents reported "fair-excellent" emotional health although 44% were in pain at the time of the interview and over 50% of the respondents reported physical pain during the previous six month period.

An exploratory series of regression analyses were conducted to determine whether any study variable moderated the relationship between perceived neighborhood risk and grandparent emotional well being. One statistically significant interaction effect was detected. Table 5.13 (Model 4) shows evidence of a statistically significant interaction

effect between caregiver status (non-permanent/permanent) and perceived neighborhood risk on emotional well being among grandparent raising grandchildren (b = -8.528, p = .046). Figure 5.1 shows that at the lowest levels of perceived neighborhood risk the "permanent" caregiving grandparents have higher levels of emotional well being compared to "non-permanent" grandparent caregivers. However, increasing levels of perceived neighborhood risk have a progressively negative impact on the emotional well being of grandparents who are "permanent" compared to "non-permanent" caregivers as revealed by the changing slope of the regression lines by level of caregiver status (Figure 5.1).

Consistent with the previous regression models, Model 4 (Table 5.13) shows that among grandparents who have assumed the role of surrogate parent for a grandchild, grandmothers have significantly (p = .001) lower levels of emotional well being than the small number of grandfather caregivers in this study. In addition, grandparents who endorsed the race/ethnic category "White, Non-Hispanic" have significantly (p < .001) lower levels of emotional well being compared to grandparents within the "Other, Non-Hispanic" group. And while grandparents over age 55 have higher levels of emotional well being compared to the other age groups, only the youngest grandparents (those in the 26-35 age-group) have significantly lower levels (p = .013). However, the pattern of the statistical significance of the impact of age on emotional well being across the models in Table 5.13 suggests a possible non-linear relationship.

Model 4 (Table 5.13) also shows a statistically significant main effect of caregiver status on emotional well being after the variance accounted for by the interaction effect is

explained in the regression equation. The caregiver main effect indicates that permanent caregivers have higher levels of emotional well being than non-permanent caregivers (p = .051), although the change in the sign and magnitude of the caregiver status regression coefficient compared to the other models shown in Model 4, was puzzling. A collinearity problem is indicated between grandparent caregiver-status and the interaction variable (perceived neighborhood risk x caregiver status) and properties of the non-statistically significant variables might have influenced the caregiver status coefficient in Model 4 (Table 5.13).

After all the variables with a p > .100 were removed from Model 4, no substantive changes in the regression coefficients and their statistical significance for the main effect of caregiver status (b = 12.19, adj. SE, 6.03, adj. p = .044) and perceived neighborhood risk X caregiver status interaction variable (b = -9.43, adj. SE = 4.77, adj. p = .049) on emotional well being was observed (model not shown) [(F(18, 361) = 9.51, p < .001)]. In addition, after removing the statistically insignificant variables from Model 4 (Table 5.13), the R^2 decreased from .3609 (Model 4) to .3366, suggesting that the deleted variables did not inflate the caregiver main effect regression coefficient shown in Model 4. The regression coefficient for the caregiver status variable in Model 4 (Table 5.13) will be interpreted as a non-spurious statistically significant main effect that indicates permanent caregiving grandparents have higher levels of emotional well being compared to non-permanent caregivers after adjusting for the factors shown in the regression model, particularly the significant interaction effect of caregiver status x perceived neighborhood risk.

In addition, while not statistically significant, the impact of grandparent physical health (p = .073), education (p = .071; i.e., no high school education compared to bachelor's degree), and employment status (p = .098) on the emotional well being is noteworthy in Model 4 (Table 5.13). Findings for grandparent marital status, annual household income/number of children in the home, and the presence of a secondary caregiver in the home were consistent. They were not significantly related to grandparents' emotional well being in Model 4 or any of the other models shown in Table 5.13.

Among the grandchild characteristics and caregiver demand block of variables entered into Model 4 (Table 5.13), the data show that grandparents with higher levels of emotional well being are caring for grandchildren that have higher levels of physical health (b = 2.090, p = .027) and lower levels of emotional/behavioral problems (b = -3.046, p = .008). Thus, the pattern of the data show that the emotional well being of grandparent who have assumed the role of surrogate parent is linked to the caregiver demand characteristics of the grandchildren in their care. The age of the child and the number of years the child was in the grandparent home were not significantly related to grandparents' emotional well being.

Table 5.14 shows both the unstandardized and standardized regression coefficients for only Model 4 from Table 5.13. The standardized regression coefficients (Beta coefficients) can be used to interpret the relative importance of the predictor variables in this model on the emotional well being of grandparents raising their grandchildren. For example, with reference to only the statistically significant predictor

variables in the model, the interaction variable (perceived neighborhood risk X caregiver status) has the strongest impact on emotional well being (B = -.638) followed by caregiver status (B = .565), level of grandchild emotional/ behavioral problem (B = -.243), grandparent race/ethnicity (B = .213), grandchild physical health (B = .189), grandparent gender (B = -.163), and grandparent age (B = -.043).

Model 4 (Table 5.13) is statistically significant [$F(23, 356) = 5.34$, $p = < .001$] and accounts for 36.09% of the variance in emotional well being scores among grandparents raising their grandchildren, and adds 5.35% over the R^2 shown in Model 2. There was no evidence that a grandparent's perception of neighborhood risk had a statistically significant main effect on her/his emotional well being as hypothesized. However, the statistically significant interaction effect indicates that caregiver status moderates the impact of perceived neighborhood risk on grandparents' emotional well being as shown in Table 5.13 and Figure 5.1.

Descriptive Analysis of Study Variables by Grandparent Caregiver Status: Permanent and Non-Permanent

This researcher did not expect to find that grandparents' emotional well being is significantly impacted by the interaction of perceived neighborhood risk and caregiver status. In light of this unexpected finding, a series of bivariate analyses were conducted to examine the study variables by caregiver status (see Table 5.15). Grandparent caregivers categorized as "permanent" (40.2%) versus "non-permanent" (59.8%) differed statistically ($p \leq .05$) with regard to annual household income ($p = .01$), number of years a grandchild is in the home ($p = .02$), and race/ethnicity proportions ($p = .03$). The

differences between “permanent” and “non-permanent” grandparent caregivers by age ($p = .07$) and education ($p = .06$) are also noteworthy, although not statistically significant.

Black (Non-Hispanic) grandparents made up 43% and 23% of all “permanent” and “non-permanent” grandparent caregivers, respectively, and White (Non-Hispanic) grandparents made up 44% and 63% of all “permanent” and “non-permanent” grandparent caregivers, respectively. In addition, among all grandparents who reported less than an annual household income of $10,000, 29% compared to 9% were “permanent” and “non-permanent” grandparent caregivers, respectively. And among all grandparents reporting an annual household income greater than $40,000, 7.7% compared to 21.8% were “permanent” and “non-permanent” grandparent caregivers, respectively.

Table 5.12: Emotional Well Being Regressed on Grandparent Characteristics/Resources (Model 1), Child Characteristics /Caregiver Demand (Model 2), & Perceived Neighborhood Risk (Model 3) Unweighted Sample (n=379)

	Model 1		Model 2		Model 3	
	b[1] (se)[2]	p[3,4]	b (se)	p	b (se)	p
Grandparent-Level Variables						
Female (Reference: Male)[5]	-5.072 (2.932)	**.084**	-5.574 (2.866)	**.053**	-5.656 (2.841)	**.047**
Age (Reference Group: > 55 years = 0)						
26-35	-4.750 (4.183)	.257	-5.268 (4.147)	.205	-5.454 (4.111)	.186
36-45	-3.942 (1.473)	**.008**	-3.746 (1.513)	**.014**	-3.610 (1.501)	**.017**
46-55	-5.704 (1.281)	**.000**	-5.084 (1.275)	**.000**	-4.844 (1.267)	**.000**
Race/Ethnicity (Reference: White Non-Hispanic)						
Black Non- Hispanic Origin	-.920 (1.163)	.429	-.496 (1.144)	.665	-.049 (1.146)	.966
Other Non- Hispanic Origin	4.649 (2.188)	**.034**	4.692 (2.138)	**.029**	4.823 (2.119)	**.023**
Hispanic Origin	.216 (1.700)	.899	.809 (1.675)	.629	1.039 (1.663)	.532
Physical Health	.019 (.048)	.694	-.019 (.0482)	.698	-.034 (.048)	.481
Marital/Partner Status	-.875 (1.351)	.518	-.531 (1.322)	.688	-1.037 (1.324)	.434
Education (Reference: No High School/GED)						
High School/GED	1.344 (1.204)	.265	1.000 (1.189)	.401	.806 (1.181)	.495
Associate/Vocational	.101 (1.971)	.959	-.197 (1.936)	.919	.052 (1.921)	.978
Bachelor	7.150 (3.021)	**.018**	7.167 (2.956)	**.016**	6.955 (2.931)	**.018**
Master/Doctorate	5.287 (4.575)	.249	3.138 (4.506)	.487	2.220 (4.479)	.620
Annual Household Income/Child in Home	.496 (.420)	.239	.412 (.412)	.317	.329 (.408)	.422
Employment Status	-.587 (1.158)	.613	-.699 (1.131)	.537	-.812 (1.122)	.470
Secondary Caregiver	.953 (1.312)	.468	.680 (1.285)	.597	.743 (1.274)	.560
Caregiver Status	.157 (1.083)	.885	-.265 (1.085)	.807	-.235 (1.075)	.827
Grandchild-Level Variables						
Age			.093 (.146)	.524	.077 (.145)	.595
Physical Health			.900 (.545)	**.099**	.971 (.541)	**.073**
Number of Years in Home			.165 (.213)	.439	.140 (.211)	.508
Level of Behavior/Emotional Problem			-2.954 (.707)	**.000**	-2.806 (.703)	**.000**
Grandparent Perception of Neighborhood						
Perceived Neighborhood Risk					-3.452 (1.271)	**.007**
Constant	56.330		58.476		63.583	
F	2.44**		3.16**		3.40**	
R^2	.0608		.1070		.1227	

NOTE: 1. b=unstandardized coefficient; 2. se=standard error of b; 3. all statistical significance levels ≤ .100 flagged in bold type; 4. p= two-tailed statistical significance level. *p ≤.01; ** p≤.001; 5. Each reference group is coded as "0."

Table 5.13: Emotional Well Being Regressed on Grandparent Characteristics/Resources (Model 1), Child Characteristics /Caregiver Demand (Model 2), Perceived Neighborhood Risk (Model 3), & Perceived Neighborhood Risk x Caregiver Status Interaction (Model 4): Weighted Sample (n=379)

	Model 1		Model 2		Model 3		Model 4	
	b[1] (se)[2]	p[3,4]	b (se)	p	b (se)	p	b (se)	p
Grandparent-Level Variables								
Female (Reference: Male)[5]	-8.507 (2.388)	**.000**	-11.456 (3.108)	**.000**	-10.158 (2.933)	**.001**	-10.491 (3.157)	**.001**
Age (Reference: > 55 years = 0)								
26-35	-6.208 (3.821)	.105	-8.602 (3.608)	**.018**	-8.190 (3.190)	**.011**	-7.311 (2.927)	**.013**
36-45	-4.075 (2.923)	.164	-4.716 (2.944)	.110	-4.519 (2.929)	.124	-4.218 (2.894)	.146
46-55	-5.256 (2.311)	**.024**	-5.117 (2.099)	**.015**	-4.451 (2.153)	**.039**	-3.763 (2.117)	**.076**
Race/Ethnicity (Reference: White Non-Hispanic)								
Black Non- Hispanic Origin	-.957 (2.372)	.687	.049 (2.390)	.984	.316 (2.276)	.890	1.585 (2.179)	.468
Other Non- Hispanic Origin	6.656 (2.328)	**.005**	7.610 (2.257)	**.001**	6.706 (2.234)	**.003**	8.109 (2.288)	**.000**
Hispanic Origin	1.588 (3.479)	.648	1.478 (3.262)	.651	1.399 (3.218)	.664	2.166 (3.257)	.506
Physical Health	-.017 (.079)	.830	-.099 (.084)	.239	-.129 (.077)	**.094**	-.138 (.077)	**.073**
Marital/Partner Status	-3.215 (2.402)	.182	-2.181 (2.328)	.349	-2.668 (2.246)	.236	-2.302 (2.156)	.286
Education (Reference: No High School/GED)								
High School/GED	.347 (2.591)	.894	-.176 (2.321)	.940	-.357 (2.220)	.872	-.702 (2.140)	.743
Associate/Vocational	.921 (2.821)	.744	1.171 (3.163)	.711	2.162 (2.958)	.465	2.300 (2.999)	.444
Bachelor	4.842 (2.611)	**.065**	3.658 (2.687)	.174	2.713 (2.904)	.351	4.306 (2.374)	**.071**
Master/Doctorate	5.887 (4.013)	.143	3.059 (5.095)	.594	1.652 (4.769)	.729	2.461 (4.889)	.615
Annual Household Income/Child in Home	.687 (.834)	.411	.640 (.734)	.384	.428 (.718)	.551	.317 (.713)	.657
Employment Status	-2.633 (2.362)	.266	-2.567 (2.174)	.239	-2.814 (2.039)	.168	-3.203 (1.933)	**.098**
Secondary Caregiver	-.651 (2.258)	.773	-1.911 (2.083)	.360	-2.214 (2.035)	.277	-2.072 (1.954)	.290
Caregiver Status	-.169 (2.138)	.937	-.249 (2.012)	.902	-.482 (1.962)	.806	10.760 (5.506)	**.052**
Grandchild-Level Variables								
Age			-.023 (.293)	.937	-.029 (.275)	.916	-.030 (.254)	.906
Physical Health			1.676 (1.020)	.101	1.771 (.982)	**.072**	2.090 (.941)	**.027**
Number of Years in Home			-.008 (.407)	.984	-.058 (.388)	.881	-.083 (.378)	.828
Level of Behavior/Emotional Problem			-3.585 (1.340)	**.008**	-3.071 (1.283)	**.017**	-3.046 (1.138)	**.008**
Grandparent Perception of Neighborhood								
Perceived Neighborhood Risk					-4.523 (2.737)	**.099**	-.506 (2.640)	.848
Perceived Neighborhood Risk X Caregiver Status							-8.528 (4.260)	**.046**
Constant	65.252		70.895		76.635		70.241	
F	4.94**		4.70**		5.05**		5.34**	
R^2	.2014		.3074		.3336		.3609	

NOTE: NOTE: 1. b=unstandardized coefficient; 2. se=standard error of b; 3. all statistical significance levels ≤ .100 flagged in bold type; 4. p= two-tailed statistical significance level. *p ≤.01; ** p≤.001; 5. Each reference group is coded as 0.

Table 5.14: Emotional Well Being Regressed on Grandparent Characteristics/Resources, Child Characteristics /Caregiver Demand, Perceived Neighborhood Risk, & Perceived Neighborhood Risk x Caregiver Status Interaction: Weighted Sample (n=379)

	All Grandparents		
	b[1] (se)[2]	B[3] (se)[4]	p[5,6]
Grandparent-Level Variables			
Female (Reference: Male)[7]	-10.491 (3.157)	-.163 (.049)	**.001**
Age (Reference: > 55 years)			
26-35	-7.311 (2.927)	-.043 (.017)	**.013**
36-45	-4.218 (2.894)	-.157 (.108)	.146
46-55	-3.763 (2.117)	-.172 (.097)	**.076**
Race/Ethnicity (Reference: White Non-Hispanic)			
Black Non- Hispanic Origin	1.585 (2.179)	.072 (.100)	.468
Other Non- Hispanic Origin	8.109 (2.288)	.213 (.060)	**.000**
Hispanic Origin	2.166 (3.257)	.048 (.073)	.506
Physical Health	-.138 (.077)	-.173 (.096)	**.073**
Marital/Partner Status	-2.302 (2.156)	-.107 (.101)	.286
Education (Reference: No High School/GED)			
High School/GED	-.702 (2.140)	-.031 (.096)	.743
Associate/Vocational	2.300 (2.999)	.063 (.082)	.444
Bachelor	4.306 (2.374)	.100 (.055)	**.071**
Master/Doctorate	2.461 (4.889)	.021 (.041)	.615
Annual Household Income/Child in Home	.317 (.713)	.038 (.085)	.657
Employment Status	-3.203 (1.933)	-.162 (.097)	**.098**
Secondary Caregiver	-2.072 (1.954)	-.107 (.101)	.290
Caregiver Status	10.760 (5.506)	.565 (.289)	**.051**
Grandchild-Level Variables			
Age	-.030 (.254)	-.013 (.109)	.906
Physical Health	2.090 (.941)	.189 (.085)	**.027**
Number of Years in Home	-.083 (.378)	-.026 (.119)	.828
Level of Behavior/Emotional Problem	-3.046 (1.138)	-.243 (.091)	**.008**
Grandparent Perception of Neighborhood			
Perceived Neighborhood Risk	-.506 (2.640)	-.024 (.124)	.848
Perceived Neighborhood Risk X Caregiver Status	-8.528 (4.260)	-.638 (.319)	**.046**
F	5.34**		
R^2	.3609		

NOTE: 1. b=unstandardized coefficient; 2. se=standard error of b; 3. B = standardized coefficient; 4 se = standard error of B; 5. all statistical significance levels ≤ .100 flagged in bold type; 6 . p= two-tailed statistical significance level. *p ≤.01; ** p≤.001; 7. each reference group coded as "0."

Figure 5.1
Interaction of Perceived Neighborhood Risk x Caregiver Status on Emotional Well Being

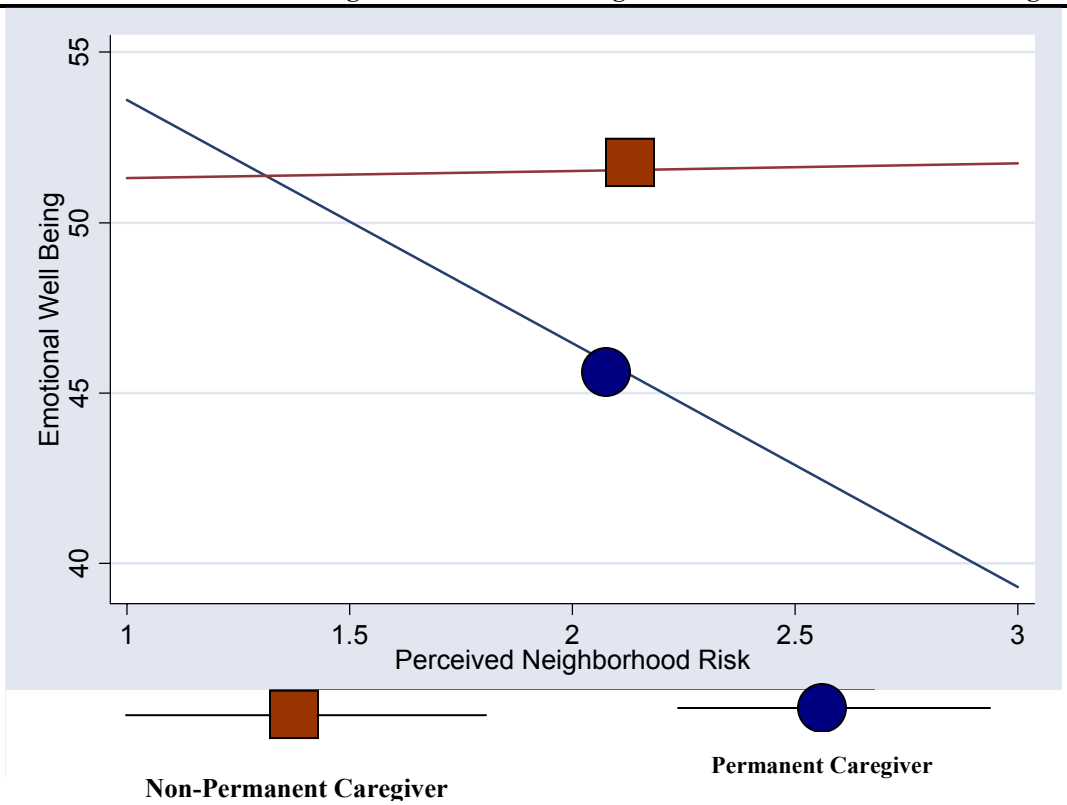


Table 5.15:
Comparison of Study Variables by Caregiver Status: Weighted Sample

VARIABLE Grandparent Level	Permanent Grandparent Caregiver	Non-Permanent Grandparent Caregiver	Level of Statistical Significance (p)[1]
Emotional Well Being	(145)	(299)	
Mean	51.62	53.72	.355
SD	13.69	10.82	
Range[2]	20- 70	21 – 69	
Neighborhood Risk	(142)	(302)	
Mean	1.37	1.30	.596
SD	.66	.48	
Range	1 – 3.00	1 - 2.86	
Gender	(146)	(319)	
% Female	96.00	96.77	.849

Table 5.15, Continued

VARIABLE Grandparent Level	Permanent Grandparent Caregiver	Non-Permanent Grandparent Caregiver	Level of Statistical Significance (p)[1]
Race/Ethnicity	(146)	(319)	
% Black Non-Hispanic Origin	43.14	23.40	**.032**
% White Non-Hispanic Origin	44.40	63.31	
% Other Non-Hispanic Origin	2.43	06.10	
% Hispanic Origin	10.03	07.19	
Grandparent Age	(146)	(316)	
Mean	3.07	3.38	.059
SD	.92	.95	
Range	1 – 4	1 – 4	
Comparison Across Column Proportions			
% 26-35	02.17	00.28	.069
% 36-45	21.54	14.51	
% 46-55	43.14	32.49	
% > 55	33.15	52.72	
Marital Status	(146)	(319)	
% Married/Partnered	38.61	45.17	.475
Grandparent Education	(146)	(319)	
Mean	1.77	1.82	.842
SD	.83	1.18	
Range	1 – 5	1 - 5	
Comparison Across Column Proportions			.063
% No High School	35.24	46.14	
% High School Diploma	54.93	38.93	
% Associate Degree	07.64	04.06	
% Bachelor	01.59	08.47	
% Post-Bachelor	00.59	02.40	
Employment Status	(146)	(319)	
% Employed	39.48	29.73	.234
Annual Household Income/Child in Home	(141)	(296)	
Mean	1.50	1.55	.846
SD	1.42	1.37	
Range	.2 – 5	.2 – 5	
Secondary Caregiver in Home	(137)	(297)	
% Yes	47.89	56.07	.432

Table 5.15, Continued

VARIABLE Grandparent Level	Permanent Grandparent Caregiver	Non-Permanent Grandparent Caregiver	Level of Statistical Significance (p)[1]
Physical Health	(145)	(299)	
Mean	41.27	45.26	.277
SD	17.20	13.68	
Range	13 - 66	13 - 64	
Annual Household Income	(141)	(296)	
Mean	2.38	2.92	.094
SD	1.52	1.64	
Range	1 – 5	1 - 5	
Comparison Across Column Proportions			**.012**
% $ 0 - 9,999	29.02	9.00	
% $ 10,000 - 19,999	33.49	43.54	
% $ 20,000 - 29,999	16.20	15.64	
% $ 30,000 - 39,999	13.58	10.05	
% $ 40,000 and greater	07.71	21.77	
Grandchild Demographic/Caregiver Demand Variables			
Age	(146)	(319)	
Mean	6.68	5.81	.363
SD	5.35	5.32	
Range	0 – 15	0 - 15	
Physical Health	(145)	(319)	
Mean	3.99	3.96	.847
SD	1.04	1.15	
Range	2 – 5	1 - 5	
Level of Behavior/Emotional Problem	(146)	(318)	
Mean	1.58	1.48	.622
SD	.99	.99	
Range	1 – 3	1 - 3	
Number of Years Grandchild in Home	(145)	(319)	
Mean	3.77	2.04	**.019**
SD	4.48	3.27	
Range	.04 - 13	.04 - 13	
Number of Children in Home	(146)	(319)	
Mean	2.07	2.46	.093
SD	1.39	1.59	
Range	1 – 5	1 - 5	

1. The p-level reported is the statistical significance of the appropriate t or X^2 statistic calculated to compare means or column proportions across caregiver status (permanent vs. non-permanent caregiver), respectively.

An Exploratory Multivariate Analysis

Exploratory Research Question

Do levels of drug misuse and alcohol use impact the emotional well being among grandparents raising grandchildren?

An exploratory hierarchical regression analysis was conducted to examine whether levels of drug misuse and alcohol use[16] can significantly predict grandparent emotional well being after controlling for 1) grandparent demographic characteristics and available resources, 2) grandchild demographic and caregiver demand characteristics, and 3) the perception of neighborhood risk. The multivariate analysis were conducted in light of previous exploratory bivariate findings that indicated a statistically significant relationship between emotional well being among grandparents raising grandchildren by combinations of alcohol use and drug misuse (see Table 5.11b).

In the following multivariate regression analyses only 126 [Table 5.16 (unweighted data), Table 5.17, and Table 5.18] grandparents were available because 1) only "permanent" caregiving grandparents were asked about their drug misuse and alcohol use (a total of 146 permanent grandparent caregivers were in the NSCAW CPS sample) 2) no imputation method was used on cases with missing data, and 3) a listwise deletion method was used. In addition, because only "permanent" caregiving grandparents were asked about "perceived social support," this variable is added to each of the following regression models.

[16] "Levels" of drug misuse and alcohol use refers to the four levels of the drug misuse and alcohol use measure described in Chapter IV and shown in Table 5.11b and Table 5.17.

Findings of Exploratory Multivariate Analysis

Table 5.16 and Table 5.17 show the separate and cumulative impact of how the emotional well being of grandparents raising grandchildren is affected by caregiver demographic characteristics and available resources (Model 1), grandchild demographic and caregiver demand characteristics (Model 2), perceived neighborhood risk (Model 3), and combinations of alcohol use and drug misuse reported by grandparents (Model 4). Table 5.18 shows the results of a "parsimonious" regression model comprised of only those predictor variables that were statistically significant at $p \leq .10$ based on Model 4 in Table 5.17.

Table 5.17 shows that among the demographic characteristics and resource variables in Model 1, only a grandparent's age and level of education significantly ($p \leq .05$) impacted her/his emotional well being. While grandparents over 55 years of age have higher levels of emotional well being than each of the other age groups, only grandparents aged 46-55 had significantly lower ($b = -8.074$, $p = .047$) lower levels of emotional well being. The data also show that grandparents with a bachelor's degree, or a higher level of education, had higher levels of emotional well being compared to those without a high school diploma or its equivalent ($b = 18.732$, $p = .004$).[17] Table 5.17 (Model 1) shows that unmarried (un-partnered) grandparents who were not married (or partnered) had higher levels of emotional well being than those who were married (partnered), although statistical significance exceeded the .05 level ($b = -7.908$, $p = .059$, i.e., not statistically significant). Furthermore, while Model 1 shows that grandparents

[17] Only 1 grandparent among the 126 had a post-graduate level of education. However, rather than dropping this case, it was collapsed into the bachelor level of the education variable.

who are White, Non-Hispanic have higher levels of emotional well being compared to Black, Non-Hispanic grandparents, the statistical significance of this relationship (b = -6.008) was p = .100 and remained statistically insignificant across subsequent models (see Table 5.17).

When the block of grandchild demographic characteristics and caregiver demand domain variables were added to the regression model, only the level of child behavior/emotional problems was shown to be statistically significant. Table 5.17 (Model 2) shows that grandparents with lower levels of emotional well being are caring for grandchildren with higher levels of behavior and emotional problems as measured by the CBCL scale (b = -6.402, p = .006). The statistical significance of the effect of education on emotional well being carried over from Model 1 and indicates that grandparents with a bachelor's degree or higher level of education have higher levels of emotional well being compared to those who have not completed high school or an equivalent level of education (b = 14.025, p = .050). Model 2 showed that grandparents over 55 had higher levels of emotional well being than the other age groups, although none of the regression coefficients met the threshold for statistical significance ($p \leq .05$). Table 5.17 (Model 2) shows that when grandchild demographic characteristics and caregiver demand domain variables are added to Model 1, an additional 18.76% of variance in emotional well being is explained.

Model 3 (Table 5.17) shows that grandparents who perceive increasing neighborhood risk have significantly (b = -8.769, p = .011) lower levels of emotional well being after controlling for 1) grandparent demographic and available resources and 2)

grandchild demographic and caregiver demand characteristics. The addition of perceived neighborhood risk to the regression model adds 6.78% to the variance explained in emotional well being scores among grandparents over Model 2, and the R^2 for Model 3 is 61.01%. The statistical significance of perceived neighborhood risk found in Model 3 was expected in light of the interaction effect (perceived neighborhood risk X caregiver status) reported in Table 5.13 (Model 4). In sum, Model 3 shows that grandparents with higher levels of emotional well being are not married/partnered (b = -6.665, p = .033), have completed a college or post-graduate level of education (compared to those who have not completed a high school level of education) (b = 11.784, p = .015), care for a grandchild with lower levels of behavioral/emotional problems (b –5.867, p = .003), and perceive lower levels of neighborhood risk (b = -8.769, p = .011).

Table 5.17 (Model 4) shows that the statistical significance of perceived neighborhood risk shown in Model 4 fades (b = -5.839, p = .103, unadjusted p = .050) after the alcohol use and drug misuse dummy-coded variables are entered into the regression model. Model 4 shows that after controlling for 1) grandparent demographic and available resources, 2) grandchild demographic and caregiver demand characteristics, and 3) perception of neighborhood risk; grandparents who do not misuse a drug or use alcohol had higher levels of emotional well being compared to those who misused a drug and used alcohol (b = -16.370, p = .037) and misused a drug but did not use alcohol (b = -10.395, p = .008). In addition, in Model 4, there was no statistically significant difference between grandparents who used alcohol only (no drug misuse) compared to those who did not misuse a drug or use alcohol (b = -.402, p = .895). The addition of the

alcohol use and drug misuse dummy-coded variables to the regression model adds 6.85% to the variance explained in grandparents' emotional well being scores over Model 3, the R^2 for Model 4 is .6786.

Model 4 shows that grandparents who are not married/partnered (compared to those who are married or partnered) (b = -4.793, p = .036), have completed a college or post-graduate level of education (compared to those who have not completed a high school level of education) (b = 11.137, p = .019), care for a grandchild with lower levels of behavioral/emotional problems (b –6.027, p < .001), care for grandchildren who are younger (b = -.730, p = .010), have cared for their grandchild for a longer period of time (b = .640, p = .093), perceive lower levels of neighborhood risk (b = -5.839, p = .103), and do not report drug misuse or alcohol use (compared to grandparents who report a) drug misuse alcohol use or b) drug misuse only) have higher levels of emotional well being. In addition, while grandparents over 55 years of age have higher levels of emotional well being than the other age-groups shown in Table 5.17, Model 4 shows that only grandparents who are 26-35 have significantly (b = -14.199, p = .012) lower levels of emotional well being. As Table 5.17 shows, when perceived neighborhood risk and self-reported drug misuse are added to Model 2, the variance explained in emotional well being increased 25.13% [(.6786 - .5423)/.5423].

Table 5.18 shows the results of including only the variables with a statistically significant regression coefficient of $p \leq .100$ reported in Table 5.17 (Model 4).[18]

[18] Chapter IV and Appendix B provides a discussion of the increase in statistical power that results from using only the variables that were shown to be statistically significant at $p \leq .10$. In a separate multivariate analysis (not shown) a fifth category was added to the variable "drug misuse and alcohol use." The fifth mutually exclusive category of the five-level variable was comprised of the group of grandparents that were not asked about their AOD use (i.e., non-permanent grandparent caregivers). This method incorporates

Grandparents' level of education was transformed into a dichotomous variable whereby data on the bachelor and post-graduate level of education were merged into one level (i.e., bachelor and higher level of education = 1) and all other categories were collapsed into a separate level of the education variable (i.e., less than a bachelor's degree = 0). With the exception of the variable indicating the number of years the grandparent cared for his/her grandchild, the statistical significance ($p \leq .05$) of each variable in Table 5.17 (Model 4) carried over to the "parsimonious" regression model shown in Table 5.18. The regression model shown in Table 5.18 is statistically significant ($F(12, 114) = 12.41$, $p < .001$) and explains 63.92% of the variance in emotional well being among grandparents raising their grandchildren.

Table 5.18 reports unstandardized and standardized regression coefficients (the standardized coefficients indicate the relative importance of each independent variable in the model). The statistically significant variables at $p \leq .05$ are the level of grandchild behavior/emotional problems, which had the greatest impact (B = -.481) on a grandparents' emotional well being, followed by the grandchild's age (B = -.290), and the drug misuse (no alcohol use) dummy-coded variable (B = -.254). The drug misuse and alcohol use dummy-coded variable (B = -.217) had less impact on grandparents' emotional well being than her/his marital status (B = -.243) but was greater than age (B =

---

missing data into a variable and is a technique used to increase the statistical power of a multivariate analysis (see Hair et al., 1998). After removing the variables social support and caregiver status (due to multicollinearity problems), 377 cases (listwise deletion used) were available for analysis and the statistical power of the analysis was .99 [(Lambda = 56.55, F(24,352) = 1.55, effect size (ES) estimate (f^2) of .15 (medium ES, see Cohen, 1988)]. After controlling for grandparent and grandchild demographics, caregiver demands, and perceived neighborhood risk, the model was statistically significant F(24, 353) = < .001 and showed that grandparents who did not misuse a drug and did not use alcohol (reference group) had significantly higher levels of emotional well being compared to grandparents who 1) misused a drug and used alcohol (p=.025) and 2) misused a drug and did not use alcohol (p=.013). However, the analysis also showed that grandparents who did not misuse a drug and did not use alcohol did not have a statistically significant different SF-12 group mean compared to 1) grandparents who did not misuse a drug but used alcohol (p=.694) and 2) grandparents who were not asked about their AOD use (p=.884). These findings are consistent with those shown in Table 5.17 and Table 5.18 concerning the affect of drug misuse and alcohol use on grandparents' emotional well being.

-.106). It is noteworthy that among the grandparent age dummy-coded variables, those with lower statistical significance (36-45 and 46-55 compared to > 55 year old) made the greatest relative contribution to the model. And while perceived neighborhood risk (B = -.188) was of greater importance in the regression model relative to grandparent education level (B = .092), both variables were statistically significant at $p \leq .10$.

Table 5.16: Emotional Well Being Regressed on Grandparent Characteristics/Resources (Model 1), Child Characteristics /Caregiver Demand (Model 2), Perceived Neighborhood Risk (Model 3), & Drug Misuse & Alcohol Use (Model 4): Unweighted Sample (n=126)

	Model 1	Model 2	Model 3	Model 4
	b[1] (se)[2]	b (se)	b (se)	b (se)
GP[3]: Female (Reference: Male)[4]	-4.027 (6.475)	-6.679 (6.264)	-7.264 (6.325)	-10.278 (6.425)
GP: Age (Reference: > 55 years)				
26-35	-9.377 (6.594)	-9.729 (6.544)	-9.122 (6.607)	-9.756 (6.442)
36-45	**-4.580*** (2.681)	**-5.126*** (2.940)	-4.818 (2.974)	-3.464 (2.952)
46-55	-3.467 (2.438)	-2.339 (2.477)	-2.112 (2.501)	-2.226 (2.451)
GP: Race/Ethnicity (Reference: White Non-Hispanic)				
Black Non- Hispanic Origin	**-3.595*** (2.105)	-2.023 (2.081)	-1.476 (2.207)	-2.326 (2.251)
Other Non- Hispanic Origin	2.405 (4.979)	.416 (4.865)	.950 (4.926)	-.884 (4.890)
Hispanic Origin	3.411 (3.558)	2.539 (3.424)	2.703 (3.437)	.797 (3.446)
GP: Physical Health	.102 (.089)	-.009 (.091)	-.022 (.093)	-.051 (.091)
GP: Marital/Partner Status	**-5.524**** (2.451)	**-4.985**** (2.370)	**-5.036**** (2.376)	**-4.802**** (2.322)
GP: Education (Reference: No High School/GED)				
High School/GED	2.871 (2.314)	1.822 (2.237)	1.488 (2.285)	.623 (2.264)
Associate/Vocational	4.301 (3.360)	2.469 (3.242)	2.416 (3.249)	1.825 (3.288)
Bachelor & Post-Graduate Level	**11.834**** (4.936)	**9.888**** (4.765)	**9.788**** (4.777)	**10.863**** (4.677)
GP: Annual Household Income/Child in Home	.428 (.805)	.087 (.774)	.040 (.778)	-.177 (.763)
GP: Employment Status	-.842 (2.079)	-.055 (2.005)	-.127 (2.012)	.123 (1.975)
GP: Secondary Caregiver	-.588 (2.380)	-.610 (2.272)	-.555 (2.278)	-.793 (2.243)
GP: Social Support	3.719 (5.022)	3.157 (4.828)	3.411 (4.849)	1.605 (4.789)
GC[5]: Age		-.151 (.286)	-.122 (.289)	-.281 (.287)
GC: Physical Health		.611 (1.026)	.719 (1.038)	.984 (1.052)
GC: Number of Years in Home		.192 (.386)	.147 (.391)	.354 (.389)
GC: Level of Behavior/Emotional Problem		**-4.834***** (1.466)	**-4.735***** (1.474)	**-4.595***** (1.441)
GP: Perceived Neighborhood Risk			-1.712 (2.267)	.552 (2.371)
GP: Drug Misuse & Alcohol Use (Reference: No Drug Misuse, No Alcohol Use)				
Drug Misuse, Alcohol Use				**-11.790*** (6.286)
Drug Misuse, No Alcohol Use				**-8.571**** (3.472)
No Drug Misuse, Alcohol Use				-2.367 (2.588)
Constant	46.192	59.386	61.554	67.941
F	1.35	1.93**	1.85**	2.07***
R^2	.0429	.1291	.1255	.1704

NOTE: 1. b=unstandardized coefficient; 2. se=standard error of b; 3. GP = grandparent; 4. Each reference group = "0"; 5. GC = grandchild. * p ≤.10 **p ≤.05; *** p≤.01: p= two-tailed statistical significance level.

Table 5.17: Emotional Well Being Regressed on Grandparent Characteristics/Resources (Model 1), Child Characteristics /Caregiver Demand (Model 2), Perceived Neighborhood Risk (Model 3), & Drug Misuse & Alcohol Use (Model 4): Weighted Sample (n=126)

	Model 1	Model 2	Model 3	Model 4
	b[1] (se)[2]	b (se)	b (se)	b (se)
GP[3]: Female (Reference: Male)[4]	-9.817 (7.123)	-6.323 (5.089)	-2.357 (4.672)	-3.771 (4.538)
GP: Age (Reference: > 55 years)				
26-35	-11.313 (8.117)	**-15.110*** (8.183)	**-12.213*** (6.786)	**-14.199***** (5.524)
36-45	-4.121 (4.408)	-6.973 (5.095)	-4.819 (5.005)	-4.416 (4.158)
46-55	**-8.074**** (4.025)	-6.712 (4.228)	-2.847 (3.668)	-3.846 (2.915)
GP: Race/Ethnicity (Reference: White Non-Hispanic)				
Black Non- Hispanic Origin	**-6.008*** (3.628)	-4.508 (3.330)	-1.633 (2.780)	-1.843 (2.718)
Other Non- Hispanic Origin	4.056 (6.446)	-.953 (6.172)	1.253 (5.346)	-.663 (5.166)
Hispanic Origin	3.422 (4.094)	.392 (3.968)	1.760 (4.111)	-.414 (4.229)
GP: Physical Health	.189 (.124)	.032 (.145)	-.0159 (.128)	-.058 (.102)
GP: Marital/Partner Status	**-7.908*** (4.147)	-5.693 (3.569)	**-6.665**** (3.082)	**-4.793**** (2.252)
GP: Education (Reference: No High School/GED)				
High School/GED	2.448 (4.080)	3.510 (3.608)	2.087 (3.342)	1.007 (2.788)
Associate/Vocational	5.927 (4.352)	5.318 (5.281)	6.772 (4.159)	4.178 (4.088)
Bachelor & Post-Graduate Level	**18.732***** (3.578)	**14.025**** (7.090)	**11.784**** (4.754)	**11.137**** (4.663)
GP: Annual Household Income/Child in Home	1.047 (1.434)	.578 (1.286)	-.340 (1.123)	-.775 (1.104)
GP: Employment Status	-1.163 (3.155)	-1.270 (2.662)	-2.285 (2.232)	-1.491 (1.981)
GP: Secondary Caregiver	-3.743 (4.134)	-2.896 (3.442)	-2.062 (3.006)	-2.010 (2.466)
GP: Social Support	-5.596 (8.170)	-1.069 (5.677)	1.782 (4.560)	1.669 (4.184)
GC[5]: Age		-.589 (.414)	-.474 (.319)	**-.730***** (.280)
GC: Physical Health		.248 (1.566)	1.351 (1.354)	1.209 (1.415)
GC: Number of Years in Home		.541 (.570)	.428 (.462)	**.640*** (.378)
GC: Level of Behavior/Emotional Problem		**-6.402***** (2.285)	**-5.867***** (1.930)	**-6.027***** (1.604)
GP: Perceived Neighborhood Risk			**-8.769**** (3.367)	**-5.839*** (3.548)
GP: Drug Misuse & Alcohol Use (Reference: No Drug Misuse, No Alcohol Use)				
Drug Misuse, Alcohol Use				**-16.370**** (7.729)
Drug Misuse, No Alcohol Use				**-10.395***** (3.835)
No Drug Misuse, Alcohol Use				-.402 (3.053)
Constant	70.56	74.717	72.646	76.330
F	5.53***	6.18***	8.14***	10.99***
R^2	.3547	.5423	.6101	.6786

NOTE: 1. b=unstandardized coefficient; 2. se=standard error of b; 3. GP = grandparent; 4. Each reference group = "0"; 5. GC = grandchild. * p ≤.10 **p ≤.05; *** p≤.01: p= two-tailed statistical significance level.

Table 5.18: Emotional Well Being Regressed on Grandparent Characteristics/Resources, Child Characteristics /Caregiver Demand, Perceived Neighborhood Risk, & Drug Misuse & Alcohol Use: Weighted Sample (n=126)

	Permanent Caregiving Grandparents Only	
	b[1] (se)[2]	B[3] (se)[4]
Grandparent-Level Variables		
Female (Reference: Male)		
Age (Reference: > 55 years)[5]		
26-35	-14.077*** (4.870)	-.106*** (.037)
36-45	-6.371* (3.606)	-.223* (.126)
46-55	-4.808* (2.755)	.213* (.122)
Race/Ethnicity (Reference: White Non-Hispanic)		
Black Non- Hispanic Origin		
Other Non- Hispanic Origin		
Hispanic Origin		
Physical Health		
Marital/Partner Status	-6.078*** (2.233)	-.243*** (.090)
Education (Reference: Less than Bachelor Degree)	7.859*	.092*
Bachelor Degree & Higher	(4.152)	(.048)
Annual Household Income/Child in Home		
Employment Status		
Secondary Caregiver		
Caregiver Status		
Grandchild-Level Variables		
Age	-.744*** (.298)	-.290*** (.116)
Physical Health		
Number of Years in Home	.617 (.382)	.196 (.121)
Level of Behavior/Emotional Problem	-6.413*** (1.615)	-.481*** (.121)
Grandparent Perception of Neighborhood		
Perceived Neighborhood Risk	-4.788* (2.840)	-.188* (.112)
Grandparent Drug Misuse & Alcohol Use (Reference: No Drug Misuse, No Alcohol Use)		
Drug Misuse, Alcohol Use	-17.544*** (6.365)	-.217*** (.078)
Drug Misuse, No Alcohol Use	-9.961*** (3.622)	-.254*** (.092)
No Drug Misuse, Alcohol Use	-.034 (2.815)	-.001 (.080)
F	12.41***	
R^2	.6392	

NOTE: 1. b=unstandardized coefficient; 2. se=standard error of b; 3. B = standardized regression coefficient; 4. se = standard error of B; 5. Each reference group is coded as "0." * p ≤.10 **p ≤.05; *** p≤.01: p= two-tailed statistical significance level.

Interaction Effects Between Perceived Neighborhood Risk & Alcohol Use on Emotional Well Being

---

Research Question

Is there any evidence that a statistically significant interaction between the AOD and perceived neighborhood risk variables significantly affect the emotional well being among grandparents raising grandchildren?

To answer the last research question, interaction variables were constructed between perceived neighborhood risk and each of the AOD variables described in chapter IV. As reported in a previous section of this Chapter, no findings supported the hypotheses that the dichotomous measures of drug misuse, alcohol use, or alcohol use and/or drug misuse had a statistically main effect on emotional well being. However, the exploratory analyses show statistically significant relationships between emotional well being and combinations of alcohol use and drug misuse, rather than a dichotomous measure of "drug misuse," per se.

A multivariate regression analysis showed no evidence of a statistically significant interaction effect between perceived neighborhood risk and the dichotomous measure of drug misuse (drug misuse/no drug misuse) on emotional well being (perceived neighborhood risk X drug misuse; b = -.554, p = .953). In addition, a separate multivariate regression analysis showed no evidence of a statistically significant interaction effect between perceived neighborhood risk and alcohol use and/or drug misuse on emotional well being (perceived neighborhood risk X alcohol use and/or drug misuse; b = -5.122, p = .512).

However, there was a statistically significant interaction effect between perceived neighborhood risk and alcohol use on emotional well being in a separate multivariate analysis shown in Table 5.19 (perceived neighborhood risk X alcohol use; b = -12.890, p = .037). Figure 5.2 shows that at the lowest levels of perceived neighborhood risk, grandparents who report the use of alcohol have higher levels of emotional well being compared to those who do not use alcohol. In addition, Figure 5.2 shows that at increasing levels of perceived neighborhood risk, grandparents' emotional well being decreases, whether he/she used alcohol or not. However, as Figure 5.2 shows, at increasing levels of perceived neighborhood risk, grandparents who use alcohol report lower levels of emotional well being compared to those who do not use alcohol, as indicated by the statistically significant rate of change of the slope between the two groups of grandparents (those who use alcohol compared to those who do not).

An examination of potential interaction effects between perceived neighborhood risk and the dummy-coded variables reported in the exploratory analysis findings section [i.e., a) combinations of alcohol use and drug misuse and b) categories of drug misuse] were not conducted. The discussion of these findings will highlight limitations of the perceived neighborhood risk variable, multivariate analyses with so few grandparents that reported drug misuse, and the need for more precise measures of AOD use, particularly "misuse."

Figure 5.2
Interaction of Perceived Neighborhood Risk x Alcohol Use on Emotional Well Being

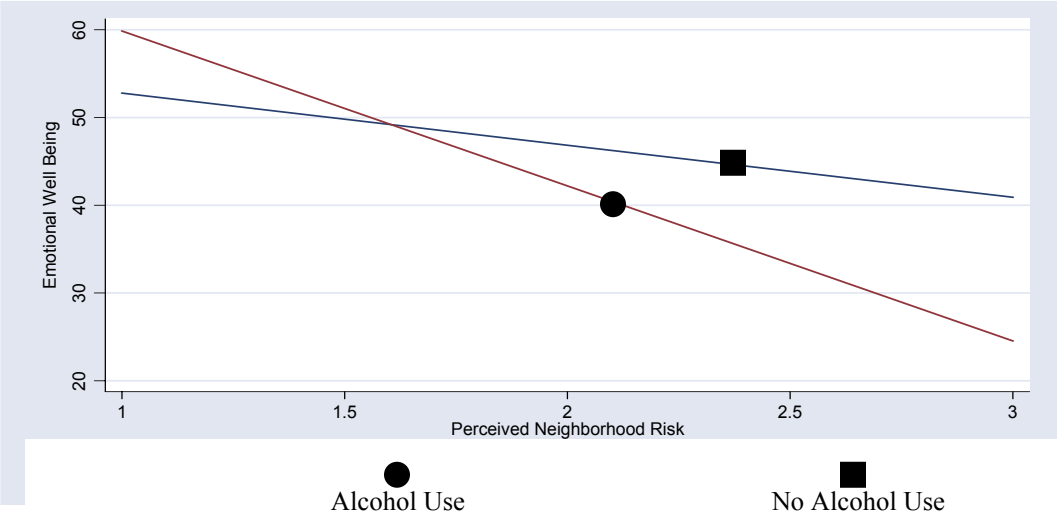


Table 5.19: Emotional Well Being Regressed on Grandparent Characteristics/Resources, Child Characteristics /Caregiver Demand, Perceived Neighborhood Risk, Alcohol Use, & Perceived Neighborhood Risk x Alcohol Use Interaction: Weighted Sample (n=126)

	Model 1 B[2] (se)[3]	Model 2[1] b (se)
GP[4]: Female (Reference: Male)[5]	-3.457	
	(5.018)	
GP: Age (Reference: > 55 years)		
26-35	-12.372**	-11.748***
	(6.044)	(4.669)
36-45	-5.234	-7.945**
	(4.531)	(3.817)
46-55	-3.177	-5.319
	(3.678)	(3.266)
GP: Race/Ethnicity (Reference: White Non-Hispanic)		
Black Non- Hispanic Origin	-.131	
	(2.860)	
Other Non- Hispanic Origin	-1.209	
	(5.635)	
Hispanic Origin	1.836	
	(4.550)	
GP: Physical Health	-.009	
	(.110)	
GP: Marital/Partner Status	-5.951**	-7.651***
	(2.959)	(2.404)
GP: Education (Reference: Less than High School Diploma or Equivalent)		
High School or Equivalent	.895	
	(3.397)	
Associate or Vocational	7.085*	
	(3.964)	
Bachelor Degree & Higher	8.335*	
	(4.670)	
GP: Education (Reference: Less than Bachelor Degree)		
Bachelor Degree & Higher		6.637**
		(2.740)
GP: Annual Household Income/Child in Home	-.778	
	(1.014)	
GP: Employment Status	-1.180	
	(2.040)	
GP: Secondary Caregiver	-.655	
	(2.842)	
GP: Social Support	5.361	
	(4.853)	
GC[6]: Age	-.526*	-.378
	(.304)	(.287)
GC: Physical Health	1.062***	
	(1.334)	
GC: Number of Years in Home	.565	
	(.368)	
GC: Level of Behavior/Emotional Problem	-7.396***	-7.010***
	(1.916)	(1.883)
GP: Perceived Neighborhood Risk	-4.309	-3.854
	(4.014)	(3.643)
GP: Alcohol Use	18.139**	14.482*
	(9.322)	(7.902)
GP: Perceived Neighborhood Risk x Alcohol Use Interaction	-12.890**	-10.189*(p=.068)
	(6.094)	(5.525)
F	9.80	7.90
R^2	.6388	.5792

NOTE: 1. Only variables statistically significant at p < .10 from Model 1 were used in Model 2; 2. b=unstandardized coefficient; 3. se=standard error of b; 4. GP = grandparent; 5. Each reference group = "0"; 6. GC = grandchild. * p ≤.10 **p ≤.05; *** p≤.01: p= two-tailed statistical significance level.

SUMMARY

The following seven points summarize this study's multivariate analysis findings:

1. Perceived neighborhood risk did not have a statistically significant main effect on the emotional well being of grandparents raising grandchildren.
2. An unexpected finding indicated that caregiver status moderated the relationship of perceived neighborhood risk on emotional well being. Among grandparents reporting the lowest levels of perceived neighborhood risk, "permanent caregivers" have higher levels of emotional well being compared to "non-permanent caregivers." However, among "permanent" grandparent caregivers, emotional well being decreases with increasing levels of perceived neighborhood risk. This pattern was not observed among "non-permanent" caregiving grandparents (see Figure 5.1).
3. Based on data collected from only "permanent" caregiving grandparents, increasing levels of perceived neighborhood risk were significantly related to decreasing levels of emotional well being after controlling for 1) grandparent demographic characteristics and resources and 2) grandchild demographic demographics and caregiver demand characteristics. This finding is consistent with the interaction effect reported (i.e., perceived neighborhood risk x caregiver status) in a previous multivariate analysis that included both "permanent" and "non-permanent" caregiving grandparents.
4. The hypothesized relationships between the dichotomous measures of drug misuse, alcohol use, and alcohol use and/or drug misuse and emotional well

being were not supported by the results of analyses reported (these analyses were limited to the subgroup of grandparents labeled as "permanent caregivers" by the NSCAW). There was limited support indicating an interaction effect between alcohol use and perceived neighborhood risk on emotional well being after controlling for 1) grandparent demographic characteristics and resources and 2) grandchild demographic demographics and caregiver demand characteristics. At the highest levels of perceived neighborhood risk, grandparents who used alcohol had lower levels of emotional well being compared to those who did not use alcohol. Although at the lowest levels of perceived neighborhood risk, grandparents who used alcohol had higher levels of emotional well being compared to those who did not use alcohol.

5. No findings indicated that drug misuse or alcohol use and/or drug misuse (i.e., the original dichotomous measures) interacted with perceived neighborhood risk to statistically impact emotional well being.
6. An exploratory multivariate analysis indicated that among permanent caregiving grandparents, those who did not use alcohol or misuse a drug had statistically significant higher levels of emotional well being compared to the following two groups, i.e., those who 1) used alcohol and misused a drug and 2) misused a drug but did not use alcohol. However, grandparents who reported the use of alcohol only (no drug misuse), compared to those who did not use alcohol or misuse a drug, did not have differ significantly on

emotional well being. These findings were statistically significant after adjusting for a) grandparent demographic characteristics and resources, b) grandchild demographic demographics and caregiver demand characteristics, and c) perceived neighborhood risk.

7. In general, the study findings provide limited support for the hypothesized relationship between perceived neighborhood risk and the emotional well being of grandparents raising grandchildren. Also, the findings indicate that drug *and* alcohol consumption is significantly related to grandparents' emotional well being.

CHAPTER VI

DISCUSSION & CONCLUSIONS

Chapter VI presents a discussion of the study findings in the context of each research question and the extant literature on this topic. The implications and limitations of this study, as well as recommendations for future research, are also discussed.

POPULATION CHARACTERISTICS

Research Question

What are the demographic characteristics of grandparents raising grandchildren within the United States child welfare system?

An estimated 5.1% (120,866) of all primary caregivers in the child welfare system[19] are grandparents caring for their grandchildren. This subgroup of grandparent caregivers represent an estimated 5.0% of the 2.4 million grandparents who are the primary caregivers of their grandchildren in the United States (U.S. Census, 2003).[20] However, no comparisons can be made between this group of surrogate parents and the estimated 95% of grandparents raising grandchildren who are not caregivers within the child welfare population because it is simply not clear which grandparents that comprise the study samples reported in the extant research literature are involved with a child welfare system.[21]

---

[19] The population of *primary caregivers* represented by the NSCAW CPS sample.

[20] These 2.4 million grandparents are primary caregivers of their grandchildren. It is estimated that 5.8 million grandparents live with their grandchildren but the focus in this study is grandparents who are the primary caregivers for their grandchildren.

[21] The phrase "involved with a state child welfare system" is used to mean a grandparent who is identified as the primary caregiver of a child within the national child welfare population. The term is not used to imply that the grandparent has perpetrated (or suspected of) child maltreatment. This phrase can be further operationalized as a grandparent caregiver represented within the NSCAW CPS sampling frame.

The following discussion is presented in two parts. First, this study's findings will be placed in the context of the demographic characteristics of grandparent caregivers based on convenience samples reported in the literature. While it is important to emphasize that many of the studies in the extant research literature did not claim to select nationally representative samples, the findings from these studies have been used to characterize what is known about the well being of grandparents raising grandchildren. In part two, a limited amount of nationally representative data on 1) grandparents raising grandchildren and 2) grandparents not raising grandchildren was identified in the research literature and will be discussed in the context of this study's findings.

Part I

Demographic Characteristics of Grandparents Raising Grandchildren Across Studies

An important population demographic finding of this study shows that the majority of grandparents raising their grandchildren are young and middle-aged adults as 55.2% of these caregivers are aged 55 years or younger. Minkler et al. (1992) and Burton (1992) reported 57.7% and 30% of the grandparents raising grandchildren in their sample were younger than 55 and 56 years of age, respectively. Force et al. (2000) reported 40% of their sample of grandparents raising grandchildren was less than 50 years of age, though 100% of the sample of grandparents caregivers in the study sample reported by Sands et al. (2000) was 50 years of age or older. Most studies in this literature report only the mean age of grandparents, which was not possible in this study given the measurement scale for age available in the NSCAW General Use Data Set. With few

exceptions, the literature (almost all of the studies used convenience or regionally isolated samples as described in Chapter II) shows an average age of grandparents raising grandchildren to be in the mid to upper 50s age-range.

Several demographic characteristics of grandparents raising grandchildren reported in this study differ from studies reported in the research literature. For example, with respect to race/ethnicity, Burton (1992), Minkler et al. (1992), and Kelley et al. (2000), reported that 100% of the grandparents raising grandchildren in their studies were Black. However, White (Hispanic was not always distinguished in this race category) grandparents raising grandchildren made up over 80% of the samples in studies reported by Kelley (1993), Hayslip et al. (1998), and Emick & Hayslip (1999). Previous investigators confined their studies to Black grandparents or used convenience samples and made no claims that their samples were nationally representative of this group of caregivers. This study estimates that the following race/ethnic distribution characterizes grandparents raising grandchildren in the U.S. child welfare system: 56% (White, non-Hispanic), 31% (Black, non-Hispanic), 8% (Hispanic), and 5% (Other, Non-Hispanic).

This study estimates that 58.3% of grandparents raising grandchildren have a high school diploma (or equivalent) or higher level of education, which is consistent with other reports in the literature, although Burton (1992), Dowdell (1995), Burnett (1999), and Kelley (2000) reported lower percentages, i.e., 45%, 39%, 25%, and 54%, respectively. However, in studies reported by Kelley (1993), Force et al. (2000), Fuller-Thomson et al. (1997), Strawbridge et al. (1997), and Sands et al. (2000), $\geq$ 69% of each sample of grandparents raising grandchildren had a high school or higher level of

education. And while many studies in the extant literature did not report the household income of their sample of grandparent caregivers, this study estimates that slightly over 17% and almost 57% of grandparents raising grandchildren have less than $10,000 and $20,000 annual household income, respectively.

The percentage of grandparents who were married or partnered in the study samples reported in the research literature on grandparents raising grandchildren ranges from 15.7% (Kelley et al., 2000) and 24% Minkler et al. (1992) to over 60% (Hayslip et al. 1998; Kelley, 1993; Minkler et al., 1997; Strawbridge et al., 1997) and 100% (Giarrusso et al., 1996). This study estimates that 42.5% of the grandparents are married or partnered. In addition, employment status was examined and this study estimates that 33.7% of grandparents raising grandchildren in the child welfare population are employed at least half-time. Although not all studies in the research literature report employment status, the reported percentage of employed grandparents ranged from 25% (Burton, 1992) and 29.4% (Kelley et al., 2000) to 47.8% (Musil, 1998) and 52% (Pruchno, 1999).

The greatest degree of consistency between the findings of this study and the extant research literature is that a grandmother, rather than a grandfather, is most often the primary caregiver among grandparents raising their grandchildren. This study estimates that 96.5% of the grandparents who assume the role of surrogate parent for a grandchild are grandmothers compared to another national study on grandparents raising grandchildren that reported 77% were female (Fuller-Thomson et al., 1997).

Part II

National Demographic Characteristics of Grandparents:

Non-Caregivers and Caregivers

Fuller-Thomson et al.'s (1997) representative (probability) sample of non-caregiving and caregiving grandparents in the U.S. and will serve as a useful reference to ground a discussion on the findings of the demographic characteristics reported in this study with particular emphasis on gender, marital status, income, age, education, race/ethnicity, and length of time of providing care for a grandchild (i.e., variables available for comparison). The substantive limitations of making comparisons between the findings of this national study and those reported by Fuller-Thomson et al. are also addressed.

An important finding of this study is that 96.5% grandparents raising grandchildren within the child welfare system are female, which was much greater than expected in light of the previous research reported in this literature. For example, in the Fuller-Thomson et al. study, 56% of all non-caregiving grandparents compared to 77% of all grandparents raising their grandchildren (i.e., primary caregiver to the child) were female. Giarrusso et al. (1996) used a probability sample collected in Los Angeles County, California and found that 58% of caregiving grandparents were female and 58% of non-caregiving grandparents were female as well. However, in another study (Alameda County, California) that used a probability sample, Strawbridge et al. (1997) reported that 74% of caregiving grandparents were grandmothers while among a comparison group of non-caregivers, 55% were female.

In this study, 42.5% of grandparents raising grandchildren were married or partnered, almost 57% reported a total annual household income of less than $20,000, and 42% had less than the educational equivalent of a high school diploma. Fuller-Thomson et al. reported that among a nationally representative sample of non-caregiving grandparents, 68% were married, the median annual household income was 29,000, and 29% had less than the educational equivalent of a high school diploma. Among grandparents raising grandchildren, Fuller-Thomson et al. reported that 54% were married, the median annual household income was reported to be $22,176, and 43% had less than the educational equivalent of a high school diploma.

In the NSCAW, White Non-Hispanic, Black Non-Hispanic, Hispanic and "Other Non-Hispanic" comprised 56%, 31%, 8%, and 5% of all grandparents raising their grandchildren, respectively. However, among grandparents who were not raising grandchildren, Fuller-Thomson reported that White Non-Hispanic, Black Non-Hispanic, and Hispanics comprised 84%, 10%, and 6%, respectively. In addition, Fuller-Thomson reported among grandparents raising grandchildren across the nation, White Non-Hispanic, Black Non-Hispanic, Hispanics, and "Other Race/Ethnicity" comprised 62%, 27%, 10%, and 1% of this group of caregivers, respectively.

This study found that 55% of all grandparent caregivers are less than 55 years of age and it is estimated that 1% are in the 26-35 age range. While it was not possible to calculate the mean age in this study sample, Fuller-Thomson found that grandparents raising grandchildren compared to non-caregiving grandparents had mean ages of 59.4 and 62.3, respectively. In addition, among grandparents raising grandchildren, 77%

compared to 59% had been caring for their grandchildren less than five years as reported in this study and Fuller-Thomson et al., respectively.

Fuller-Thomson et al. reported statistically significant differences between grandparents raising grandchildren and grandparents not caring for a grandchild on the following demographic variables, gender ($p<.001$), marital status ($p<.001$), mean age ($p<.01$), race/ethnicity ($p<.001$), income ($p<.05$), and education level ($p<.001$). While a current replication of the findings reported by Fuller-Thomson et al. is needed, it is plausible that similar differences on demographic characteristics between *non-caregiving* grandparents and grandparents raising grandchildren in the child welfare system may also exist.[22]

Caution is advised when comparing the two groups of grandparents raising grandchildren, i.e., the group of grandparents represented in this study which is a subgroup of the grandparent caregiver group reported by Fuller-Thomson et al. Although it can be argued that the *non-caregiver* group of grandparents reported by Fuller-Thomson et al. and the caregiver group reported in this study differ by caregiver status, an important limitation in comparing these data across studies is that it is not possible to determine what proportion of grandparents raising grandchildren in the Fuller-Thomson et al. study were involved with a state child welfare system, which is an important distinction to make contingent on the type of comparison is to be made between the two groups of caregivers of grandchildren. Another important limitation when making

[22] The sample size in this study was 465. The Fuller-Thomson study sample size was n=173 and n=3304 for caregiving and non-caregiving grandparents, respectively. The Fuller-Thomson study did not report standard deviations for demographic zero-order comparisons across groups in their study.

comparisons across studies is that Fuller-Thomson et al.'s data were collected during 1992-1994, while the NSCAW Wave I observations were made from 1999 through 2001.

Based on the limited data available to make such comparisons, grandparents raising grandchildren within state child welfare systems, compared to grandparent caregivers not involved with a state child welfare system, seem to have lower levels of annual household income, provide care for their grandchildren for a shorter amount of time, and have a larger proportion of grandparents who are women, unmarried, younger, and of color or minority status.

EMOTIONAL WELL BEING OF GRANDPARENTS AND NATIONAL NORMS

Research Question
How does the emotional well being of grandparents raising grandchildren compare to the general United States population by age and gender groups?

The data in this study do not show high rates of psychological distress among grandparent caregivers and is at odds with much of the research literature on grandparents raising grandchildren that describe these surrogate parents' emotional well being. In this study, an estimated 73% of these grandparent caregivers had levels of emotional well being at or above the SF-12 MCS national norm. In addition, a comparison of SF-12 MCS group means by the same gender indicated that caregiving grandmothers and grandfathers reported significantly higher ($p < .001$) levels of emotional well being compared to women and men in the U.S. general population, respectively. However, when SF-12 MCS group mean comparisons were made between grandparents raising grandchildren and national norms across similar age groups, no

statistically significant differences were found, with the exception of grandparents aged 55 years and older. Grandparents over age 55 had significantly higher ($p < .001$) levels of emotional well being compared to the national norms reported among the following age-groups within the U.S. general population: 55-64, 65-74, and ≥ 75.

In a national study, Minkler et al. (1997) reported that 14.5% of *non-caregiving grandparents* and 25.1% of caregiving grandparents met the standardized criteria for depression based on CES-D measures (i.e., CES-D score of $\geq$16). However, this study estimates that 8.5% of the grandparents in this study met the criteria for a diagnosis of major depression using the SF-12 MCS (i.e., SF-12 MSC score of ≤ 34). Other studies in the research literature have also reported higher percentages of grandparents raising grandchildren that experience clinical levels of psychological distress compared to this study. For example, Burton (1992) and Minkler et al. (1992) reported that 86% and 71.8% of the grandparents raising grandchildren in their samples indicated feeling depressed or anxious, respectively. In studies that used the CES-D, 41% (Musil, 1998), 44.6% (Force et al., 2000), and 21.5% (Prunchno & McKenney, 2002) of the caregiving grandparents in each sample reported symptoms indicative of clinical depression. Burnette (1999) reported that 47% of the grandparents raising grandchildren in her sample were "at least mildly depressed" using the GDS. And Kelley (1993) and Kelley et al. (2000) reported that 44% and 28.4% of the grandparents raising grandchildren in their samples scored in the GSI clinical range indicating psychological distress, respectively.

The higher rates of psychological distress among grandparents reported in the literature, compared to this study, are likely due to sampling selection bias resulting from the use of convenience samples, particularly those studies that collected data from grandparent caregivers seeking assistance from human service agencies. In the present study it is possible that the high levels of grandparents' emotional well being results because grandparents with high levels of emotional well being are more likely to assume the role of surrogate parent for their grandchild. Nonetheless, the finding that poor mental health does not accurately characterize the emotional well being of grandparents in this study should not minimize the wide range of SF-12 MCS scores evident among these caregivers (i.e., SF-12 MSC range: 20-70).

ALCOHOL USE AND DRUG MISUSE AMONG GRANDPARENTS

Research Question

What is the prevalence of alcohol use, drug misuse, and alcohol and/or drug misuse among grandparents raising their grandchildren?

No known study has examined AOD use among grandparents raising grandchildren with the exception of Burton (1992) who reported that 36% of her sample of grandparent caregivers said they "were drinking quite heavily" (p. 749) and little is known about alcohol use among caregivers, in general (Polen & Green, 2001). This study[23] found the past year prevalence rate for alcohol use among grandparent caregivers aged 26 and older to be 16.1%. Findings from the 2000 National Household Survey on

[23] Recall that in the NSCAW, only "permanent" grandparent caregivers were asked about their AOD use; therefore findings specific to AOD use cannot be generalized to non-permanent caregiving grandparents.

Drug Abuse (NHSDA)[24] indicate the past year alcohol use prevalence rate of 63.7% for the U.S. general population aged 26 years and older (SAMHSA, 2001a). And in a study of informal caregivers (not specific to grandparents), Polen and Green (2001) reported that 59.5% used alcohol within the past year. In addition, past year prevalence rates reported for alcohol dependence and alcohol dependence or abuse in 2000 were estimated to be 2.0% and 4.2% of all individuals 26 years of age or over in the U.S., respectively (SAMHSA, 2001a). In this sample of grandparents, one (1) grandparent (unweighted sample) met the diagnostic criteria for alcohol dependence based on the CIDI. It will be recalled that an estimate for alcohol abuse (diagnostic classification) was not possible given measures available in the NSCAW General Use Data Set.

This study estimates that the past year prevalence rate for drug misuse among grandparent caregivers is 19.2% and that 16.7% of grandparent caregivers misused a prescription-type drug (sedative, tranquilizer, or analgesic). No grandparent in the sample 1) met the diagnostic criteria for drug dependence as measured by the CIDI, 2) reported amphetamine, hallucinogen, or heroin misuse, or 3) reported drug misuse if s/he was in the 26-35 age-group. In the 2000 NHSDA, the past year prevalence rates are reported for the same drugs referenced in this study, although the following clarification is offered to interpret findings based on the NHSDA use of the terms "illicit drug" and "non-medical use of a psychotherapeutic drug."

In the 2000 NHSDA, the term "illicit drug" includes "marijuana, cocaine, inhalants, hallucinogens, heroin, or non-medical use of psychotherapeutics, which

[24] Data from the 2000 NHSDA is referenced because the NSCAW data used in the present study was collected between 1999 – 2001.

include stimulants, sedatives, tranquilizers, and pain relievers (see SAMHSA, 2001a, Appendix D). The 2000 NHSDA past year prevalence for "illicit drug" use is 7.1% for the general U.S. population aged 26 and older (2003 NSDUH estimate was 10.3%, see SAMHSA, 2004).[25] The 2000 NHSDA also reports a separate past year prevalence rate of "non-medical use for psychotherapeutic" drug use among the U.S. general population aged 26 and older is 2.6% (2003 NSDUH estimate was 4.5%). However, NHSDA (and NSDUH) data on "non-medical use of psychotherapeutic" is based on responses to the following feeder question: "How long has it been since you last used any prescription [pain reliever, sedative, stimulant, or tranquilizer] that was not prescribed for you *or that you took only for the experience or feeling it caused*?"[26] (see SAMHSA, 2001a, Appendix D; SAMHSA, 2004, Appendix C).

The NHSDA (and NSDUH) use of the term "non-medical use of psychotherapeutic" is not equivalent to this study's operational definition of "drug misuse" (see Table 4.3b to review the feeder CIDI question used to construct the "drug misuse" measure in this study). For example, a grandparent who had been prescribed a tranquilizer, but nonetheless "misused" the drug based on the definition in this study (e.g., took the drug longer than prescribed), may not meet the NHSDA criterion for "non-medical psychotherapeutic" use of the tranquilizer drug. It is believed that the section of the NHSDA feeder question phrased as "*or that you took only for the experience or feeling it caused"* is the source of the non-comparability between the drug misuse measure used in *this* study and the 2000 NHSDA (and 2003 NHSDUH) measure of "non-

[25] In 2002, SAMHSA changed the name of the NHSDA to the *National Survey on Drug Use and Health* (NSDUH).
[26] Italics added for emphasis.

medical psychotherapeutic" drug use. The comparability of AOD measures has been identified as a problem in the research literature (Atkinson, 1984; Greenfield, 1995; Gurnack, 1997; McNeece & DiNitto, 2005; Semidei, Radel, & Nolan, 2001). While future research may consider the use of AOD standardized diagnostic measures, particular attention must be placed on the reliability and validity of these measures among older adults (Vinton & Wambach, 2005) and across race/ethnic groups (McNeece & DiNitto, 2005) and gender (Davis & DiNitto, 2005).

There is no question that the small sample size coupled with restricting the analysis to only "permanent" grandparent caregivers is a limitation to estimating the AOD use prevalence rates among this population of grandparent caregivers. However, the data presented in this study marks an important first step in describing AOD consumption rates among this growing population of surrogate parents. The past year prevalence rates of prescription-type drug misuse presented in this study [e.g., analgesics (10.8%), tranquilizers (5.5%), and sedatives (1.9%)] among grandparent caregivers is particularly noteworthy in light of an increasing amount of attention placed on prescription drug "misuse" (Gurnack, 1997), "abuse and dependence" (Greenfield, 1995), and addiction (NIDA, 2001). The 2000 NHSDA estimates the past year prevalence rates of non-medical use of analgesics, tranquilizers, and sedatives among the U.S. general population aged 26 or older to be 1.8%, .9%, and .2%, respectively. The 2003 NHSDA estimates the past year prevalence rates of non-medical use of analgesics, tranquilizers, and sedatives among the U.S. general population aged 26 or older to be 3.3%, 1.5%, and .3%, respectively. Thus, while the findings of this study do not show alcohol and drug

dependence is a particularly serious problem among this population of caregivers, there is evidence that the misuse of analgesic, tranquilizer, and sedative drugs is a concern and warrants further examination.

PREDICTORS OF GRANDPARENTS' EMOTIONAL WELL BEING

In this study, predictors of grandparents' emotional well being reported in much of the extant research literature were categorized within two conceptual domains: 1) grandparent demographic characteristics/resources and 2) grandchild demographic characteristics/caregiver demand characteristics. The development of these two categories served a conceptual (see Figure 3.1) and analytical purpose, as an important aim of this study was to determine whether perceived neighborhood risk and AOD consumption would significantly predict levels of grandparents' emotional well being after controlling for significant predictors previously identified in the research literature on this topic. Unfortunately, because the NSCAW did not ask "non-permanent" grandparent caregivers about their AOD use[27] (as discussed in Chapter IV), two separate series of findings were reported based on 1) the "permanent" caregiver sample only and 2) the sample comprised of "permanent" and "non-permanent" grandparent caregivers. Although these separate analyses constitute a potential source of ambiguity in discussing the findings, the following paragraph describes how the findings from these analyses will be discussed.

This discussion has three parts. In Part I, this study's answer to the research questions about the role of AOD consumption as a significant predictor of grandparent's

[27] It is estimated that 59.8% of this study's target population of grandparent caregivers are classified by the NSCAW as "non-permanent" caregivers.

emotional well being is the focus of discussion and based only on the "permanent" caregiver sample. Part II will focus on this study's answer to the research question about the role of perceived neighborhood risk as a significant predictor of grandparents' emotional well being and based on findings that used 1) the "permanent" caregiver sample only and 2) the sample comprised of "permanent" and "non-permanent" grandparent caregivers. Part III focuses on the significance of the study variables categorized as 1) grandparent demographic characteristics/resources and 2) grandchild demographic characteristics/caregiver demand characteristics, in regard to grandparents' emotional well being in the context of previous research findings reported in the literature.

Part I

Research Questions

Is alcohol use a significant factor in predicting the level of emotional well being among grandparents raising grandchildren?

Is drug misuse a significant factor in predicting the level of emotional well being among grandparents raising grandchildren?

Is alcohol use and/or drug misuse a significant factor in predicting the level of emotional well being among grandparents raising grandchildren?

Exploratory Research Question

Do levels of drug misuse and alcohol use impact the emotional well being among grandparents raising grandchildren?

Among "permanent" grandparent caregivers, this study found no evidence that grandparents' emotional well being was related to the dichotomous measures of alcohol use, drug misuse, or alcohol use and/or drug misuse, as hypothesized. Although previous studies in the mental health and AOD literatures have shown that alcohol and drug

disorders are linked to clinical levels of depression (Atkinson & Mirsa, 2002; Grant, 1995; Grant & Harford, 1995; Kessler et al., 1996; Kessler, et al., 1997b; Murphy, 2002; Regier et al., 1990), comparable diagnostic measures of alcohol, drug, or mental disorders could not be used in this study. Thus, it is possible that grandparents' emotional well being may be related to alcohol and drug consumption operationalized in terms of diagnostic categories of AOD disorders.

Drug dependence was not indicated in the sample of grandparent caregivers, and only one (1) caregiver met the criteria for alcohol dependence. However, the proportion this subgroup of grandparent caregivers who would meet the diagnostic criteria for alcohol or drug abuse among those who self-reported alcohol use or drug misuse remains an open question.[28] In light of this study's finding that 19.2% grandparents misused at least one drug (16.7% misused a prescription drug), further research is needed to examine a possible link between drug abuse (particularly prescription drug abuse) and emotional well being or diagnostic categories of mental disorder (e.g., affective and anxiety disorders).

However, exploratory analyses in this study found that an AOD measure of *specific combinations* of alcohol use *and* drug misuse was a significant predictor of grandparents' emotional well being. These findings indicated that grandparents who did not use alcohol or misuse a drug had statistically significant higher levels of emotional well being compared to the following two separate groups, i.e., those who 1) misused a drug and used alcohol and 2) misused a drug but did not use alcohol. Grandparents who

[28] Recall that the CIDI administered in the NSCAW only measured the DSM diagnostic category of AOD *dependence*, not AOD abuse.

reported alcohol use only (no drug misuse), compared to those who did not use alcohol or misuse a drug, did not have statistically significant differences in emotional well being. It is possible that some or all of the grandparents who 1) misused a drug and used alcohol and 2) misused a drug but did not use alcohol might actually represent individuals who would meet the diagnostic criteria for an AOD disorder. If this speculation is correct, then the exploratory findings might really be showing that grandparents' emotional well being is significantly related to AOD disorders, which is consistent with studies reported in the extant mental health and AOD research literatures.

A multivariate analysis indicated that the addition of drug misuse and alcohol use increased the proportion of explained variation in these surrogate parents' SF-12 MCS scores by 11.23% after controlling for a) grandparent demographic characteristics and resources, b) grandchild demographic demographics and caregiver demand characteristics, and c) perceived neighborhood risk. On balance, these findings may be interpreted to mean that alcohol *and* drug consumption is a significant predictor of grandparents' emotional well being, although this may be contingent on the specific measure of AOD consumption used.

Only one known study has examined the relationship between AOD consumption and emotional well being among grandparents raising their grandchildren and the present study findings contribute to the research literature on this topic. However, because only 40.2% of the target population of this study were asked about AOD use, it is unknown to what extent AOD consumption impacts "non-permanent" grandparent caregivers' emotional well being.

Part II

Research Question

Is perceived neighborhood risk a significant factor in predicting emotional well being among grandparents raising grandchildren?

Hypothesis

Higher levels of perceived neighborhood risk are significantly associated with lower levels of emotional well being among grandparents raising their grandchildren after adjusting for the caregiving grandparent's age, race/ethnicity, physical health, marital/partner status, education level, annual household income per child in the home, and employment status, presence of a secondary caregiver in the home, caregivers' status (permanent/non-permanent), grandchild's age, health status, number of years in the home, and level of behavior problems.

Exploratory Research Question

Do grandparent demographic characteristics/resources or grandchild demographic/caregiver demand characteristics moderate the impact of perceived neighborhood risk on the emotional well being of grandparents raising grandchildren?

This study did not find that grandparents' perception of neighborhood risk was related to their emotional well being, as hypothesized. Burton (1992) studied the impact of neighborhood conditions on grandparents' emotional well being and reported that environmental conditions classified as "neighborhood dangers" contributed to these surrogate parents' psychological distress. In addition, studies in the broader research literature suggest that grandparents' emotional well being would be negatively impacted by higher levels of perceived neighborhood disorder (Curtrona et al., 2000; Ross, 2000) and ambient hazards (Aneshensel & Sucoff, 1996), as similarly hypothesized in this study. This study's lack of a statistically significant relationship between perceived neighborhood risk and grandparents' emotional well being[29] after controlling for 1)

[29] In Chapter V, separate multivariate analyses showed that among "permanent" and "non-permanent" grandparent caregivers the relationship was b = -4.523, p = .099; among "permanent" grandparent caregivers only, the relationship was b = -4.788, p = .095 as shown in Table 5.13 and Table 5.18, respectively.

grandparent demographic characteristics and resources and 2) grandchild demographic characteristics and caregiver demands, and 3) drug misuse and alcohol use[30] merits a brief discussion concerning the measure of "perceived neighborhood risk."

The non-significant ($p < .10$) main effect between perceived neighborhood risk and grandparents' emotional well being may be linked to the validity of the measurement used to index neighborhood conditions in this study. The index of perceived neighborhood risk (see Appendix A) was developed by this researcher with the intent of constructing a measure similar to the construct of perceived neighborhood disorder described by Skogan (1990) and Ross and Mirowsky (1999), which has been shown to be significantly related to emotional well being. Although there is evidence that the measure of perceived neighborhood risk demonstrates content and factorial validity, it is not a measure of perceived neighborhood disorder per se. For example, the index of perceived neighborhood risk does not include items that tap the theoretical range of perceived neighborhood disorder which includes the dimension of physical disorder (e.g., abandoned buildings, noise levels, vandalism, maintenance of homes/apartments, etc.). More importantly, it was not possible to examine the construct validity of perceived neighborhood risk in this study. Thus, it is possible that perceived neighborhood risk does not measure a sufficient array of environmental conditions that are related to emotional well being.

Exploratory analysis did indicate that grandparents' emotional well being was significantly impacted by the interaction of perceived neighborhood risk and caregiver

[30] Only "permanent" grandparent caregiver sample was used when the effects of drug misuse and alcohol use were controlled in the analysis.

status ("permanent/non-permanent). A graphic (Figure 5.1) of the interaction effect showed that at low levels of perceived neighborhood risk the emotional well being of "permanent" and "non-permanent" grandparent caregivers' were similar. At increasing levels of perceived neighborhood risk, however, only the "permanent" grandparent caregivers' emotional well being decreased; the emotional well being of non-permanent caregivers' did not change across levels of perceived neighborhood risk. Thus, there is some evidence that the "perceived neighborhood risk" measurement quantifies environmental conditions related to grandparents' emotional well being, although the reason why perceived neighborhood risk would negatively impact "permanent" grandparent caregivers' emotional well being but not "non-permanent" caregivers is unclear.

According to the NSCAW literature, "non-permanent" grandparent caregivers assume the primary care of their grandchildren for a time-limited period, whereas there is no expectation that the surrogate parent role will end in the foreseeable future among "permanent" grandparent caregivers (see Chapter IV). However, beyond the way caregiver status is operationalized in the NSCAW,[31] the distinction(s) between "permanent" and "non-permanent" caregivers that could possibly account for the significant interaction effect (i.e., perceived neighborhood risk x caregiver status effect on grandparents' emotional well being, see Table 5.13, Model 4) found in this study

[31] The NSCAW operationalizes "non-permanent" caregivers status as the primary caregiver of a child in "out-of-home-placement," i.e., "the child is placed with an individual or facility which is licensed to provide a home for orphaned, abused, neglected, delinquent, or disabled children, usually with the approval of the government or a social service agency" (Dowd, et al., 2003, Appendix B, p. B-10). Non-permanent caregivers include grandparents who are designated by the state as "foster parents" or "kinship caregivers." Furthermore, non-permanent caregivers typically care for children until the child can return to his/her permanent caregiver. Permanent caregivers are those who are the primary caregivers of children *not* in out-of-home placement and there is no expectation that the surrogate parent role will end in the foreseeable future.

is/are not clear. Furthermore, a recent report to the U.S. Congress maintains the ways child welfare agencies distinguish groups of kinship caregivers of children varies substantially across states in terms of eligibility requirements and support services available to this group of surrogate parents (DHHS, 2000; Smith, et al., 2001). And while statistically significant differences were identified among grandparents by caregiver status ("permanent" and "non-permanent") on annual household income, race/ethnicity and years the grandparent cares for her/his grandchild, none of these factors were found to have a significant main effect or to interact with perceived neighborhood risk to impact grandparents' emotional well being.

Another possible explanation to account for the interaction of perceived neighborhood risk and caregiver status on grandparents' emotional well being may be linked to a differential distribution of needed services among "permanent" and "non-permanent" caregivers. For example, grandparent caregivers who perceive high levels of neighborhood risk may likely be distressed about their grandchild's exposure to the conditions of the immediate living environment (i.e., their grandchild's safety) as reported by Burton (1992) and Minkler and Roe (1993). If services such as daycare or after-school programs are only provided to "non-permanent" caregivers (e.g., services available because of one's status as a "kinship" foster parent), substantial distress among this sub-group of caregivers may be alleviated. However, the same needed services not available to "permanent" caregivers may be a critical factor that contributes to low levels of emotional well being among grandparents who characterize their neighborhoods as high risk (recall Minkler & Roe's [1993] use of the term "drug war zones" used to

describe some inner-city neighborhoods, p. 158). The availability of certain types of services may not affect grandparent caregivers' emotional well being when the family resides in a neighborhood characterized as safe, regardless of the grandparents' caregiver status.

Giarrusso et al. (1996) reported that grandparents' who perceived higher levels of control over the circumstances that lead to assuming the surrogate parent role have lower levels of emotional distress. In addition, Piper and Langer (1986) report that the degree to which individuals can anticipate and predict events has been shown to have a positive impact on their emotional well being. In light of these studies, it is possible that a grandparent caregivers' awareness that the duration of assuming the surrogate parent role is time-limited could also be an important factor relevant to an explanation for the interaction effect identified in this study. For example, among grandparent caregivers who perceive high levels of neighborhood risk, perhaps the knowledge that one's grandchild will not endure long-term exposure to potentially harmful conditions is a measure of personal control not present among "permanent" caregivers. For permanent grandparent caregivers who perceive high levels of neighborhood risk, their emotional well being may decrease as a result, or in part, because of a chronic concern for the safety of this/her grandchild; particularly if the grandparent feels powerless to change the characteristics of the environmental conditions associated with the high risk perceived in the neighborhood. Conversely, perhaps the expectation of the duration of time for assuming the surrogate parent role is not a major contributor to grandparents' emotional well being when the neighborhood conditions are perceived as safe (low risk) and, as

follows, not believed to be a salient source of harm to their grandchildren. On balance, the reason why caregiver status interacts with perceived neighborhood risk to significantly impact grandparents' emotional well being is unclear and these possible explanations offered are only speculative.

Perceived Neighborhood Risk & "Permanent" Grandparent Caregivers' Emotional Well Being

The multivariate findings based on the sample of "permanent" grandparent caregivers raises questions about the provisional explanations for the interaction of caregiver status and perceived neighborhood risk on grandparents' emotional well being. Perceived neighborhood risk was significantly related to emotional well being and increased the amount of explained variance in these surrogate parents' SF-12 scores by 12.5% after accounting for 1) grandparent demographic characteristics and resources and 2) grandchild demographic characteristics; this was expected given the previous reported findings that indicated a significant interaction between perceived neighborhood risk and caregiver status on grandparents' emotional well being (see Table 5.17, Model 3). After drug misuse and alcohol use (dummy-coded variables) was entered into the multivariate regression model, the main effect between emotional well being and perceived neighborhood risk remained statistically significant at the 90-percent confidence level (unadjusted $p = .045$, adjusted $p = .095$). In previous studies using nationally representative sample of grandparents, the significance of parameter estimates were evaluated at the 90-percent confidence level (Minkler et al., 1997; see U.S. Census, 2000). Therefore, in light of the discussion above concerning the "perceived

neighborhood risk" measure, the previous research literature on this topic, and a synthesis of the results of this study's multivariate regression models (Table 5.13 & Table 5.18), these findings are interpreted to indicate that the significance of the main effect of perceived neighborhood risk on grandparents' emotional well being is important and should not be overlooked. However, it is not clear to what degree the length of time one lives in a neighborhood impacts his/her perception of neighborhood conditions. For example, living in a neighborhood for longer periods of time may "desensitize" an individual to perceptions of risk in the immediate environment. In addition, it is not clear to what degree grandparent resources not measured in this study (e.g., spirituality and culture) may buffer the hypothesized relationship between perceived neighborhood risk and grandparents' emotional well being.

There are problems inherent in comparing the separate findings of multivariate analyses between 1) "permanent" caregivers which includes drug misuse and alcohol use in the model and 2) the sample comprised of "permanent" and "non-permanent" caregivers that does not include drug misuse and alcohol use in the model. More specifically, these findings clearly show a need for measures of AOD consumption among non-caregiving grandparents to better explicate the apparent interaction of "perceived neighborhood risk" and caregiver status on grandparents' emotional well being.

Part III

Grandparent Demographic Characteristics/Resources & Grandchild Demographic Characteristics/Caregiver Demands As Predictors of Grandparents' Emotional Well Being

This study found that several factors within each of the two conceptual domains of control variables were significantly related to grandparents' emotional well being. These findings are based on the final multivariate regression models shown in Table 5.13 and Table 5.17. The following discussion does not address any specific research question, but rather discusses this study's findings in the context of the extant research literature on predictors of grandparents' emotional well being.

Among the target population of this study,[32] the following grandparent demographic characteristic/resource domain variables were significantly related to grandparents' emotional well being: gender, age, and race/ethnicity. Grandfathers had higher levels of emotional well being than grandmothers; "White, Non-Hispanic" grandparents had lower levels of emotional well being compared to those in the "Other, Non-Hispanic" race/ethnic group;[33] and while grandparents over age 55 had higher levels of emotional well being compared to those in other age groups, only the youngest grandparents (26-35 age-group) had significantly lower levels. Among the grandchild demographic characteristic/caregiver demand domain study variables, higher levels of grandparent emotional well being were significantly related to higher levels of grandchild health and lower levels of grandchild behavior/emotional problems.

[32] No distinction is made between "permanent" and "non-permanent" grandparent caregivers.

[33] In the NSCAW General Use Data Set, 6.4% and 3.7% of all grandparents raising grandchildren (primary caregiver) were identified as belonging to the Native Indian/Alaskan and "Other" race, respectively.

These findings are consistent with studies by Minkler et al. (1997) and Szinovacz et al. (1999) who reported grandmothers had significantly lower levels of emotional well being than grandfathers, and several studies have reported higher levels of psychological distress among younger grandparent caregivers compared to older grandparents raising their grandchildren (Burnette, 1999; Kelley et al., 2000; Minkler et al., 1997; Sands et al., 2000; Ruiz, 2004). Minkler et al. (1997) and Sands et al. (2000) did not report race/ethnic differences in emotional well being among surrogate parents, although Pruchno's (1999) study indicated the perception of caregiver burden was greater among white grandparent caregivers compared to black grandparent caregivers.

This study's findings indicated grandparents' emotional well being was not significantly related to the following variables: grandparent health, annual household income/number of children in household,[34] employment status, secondary caregiver in the home, social support,[35] and length of time caring for grandchild. However, other studies have found that higher levels of grandparents' emotional well being are related to higher levels of social support (Burnett, 1999; Kelley, 1993; Kelley et al., 2000), increasing levels of household income (Kelley et al., 2000; Minkler et al., 1997; Szinovacz et al., 1999), caring for a grandchild longer (Minkler et al., 1997), less grandchildren in the home (Kelley et al., 2000), and higher levels of self-reported physical health (Burnett, 1999; Kelley et al., 2000; Minkler et al., 1997; Pruchno & McKenney, 2002; Szinovacz et al., 1999). Other studies have not shown grandparents' emotional well being to be

[34] Annual household income or the number of children in the grandparent home, examined separately, was not found to be statistically significant predictors of emotional well being. Annual household income/number of children in the home was conceptualized as a resource variable.

[35] Measured by the NSCAW only for "permanent" grandparent caregivers.

significantly related to social support (Minkler et al., 1997; Sands et al., 2000), employment status (Sands et al., 2000), annual household income (Burnette, 1999; Sands et al., 2000), or number of years caring for a grandchild (Sands et al., 2000).

The multivariate analysis based on the sample of "permanent" grandparent caregivers in the current study indicated several notable differences and many similarities among the factors that were shown to be significantly related to all grandparents' emotional well being in the target population. First, "permanent" grandparent caregivers' emotional well being was not significantly related to gender or race/ethnicity. It is noteworthy that the addition of drug misuse and alcohol use to the multivariate regression model had no impact on the statistical significance of gender or race/ethnicity to "permanent" grandparents' emotional well being. Among the study variables within the grandparent demographic characteristics and resource domain, the following variables were significantly related to "permanent" caregivers' emotional well being: age and marital/partnered status.

Age was significantly related to "permanent" grandparents' emotional well being as in the analysis with both "permanent" and "non-permanent" grandparent caregivers. Permanent grandparent caregivers' emotional well being was significantly higher among those who were unmarried/unpartnered compared to those who were married/partnered, although, in another national study reported by Minkler et al. (1997), being married/partnered was significantly related to higher levels of grandparent caregivers' emotional well being. All of the remaining grandparent demographic characteristics and

resource study variables were not significantly related to "permanent" grandparents' emotional well being.

Across this study's findings, grandchild behavior/emotional problems were significantly related to grandparents' emotional well being. Furthermore, the grandchild's level of behavior/emotional problems was consistently one of the most important contributors to the variance explained in grandparents' emotional well being as evidenced by the standardized regression coefficients shown within each of the multivariate regression models. In addition, lower levels of grandparents' emotional well being were significantly related to their grandchild's lower levels of physical health (among sample comprised of "permanent" and "non-permanent" caregivers) and increasing age of the youth (among sample of "permanent" grandparent caregivers only). However, grandchild age was significantly related to "permanent" grandparent caregivers emotional well being only after drug misuse and alcohol use was entered in the multivariate regression model.

Previous studies reported in the research literature have shown that increasing levels of emotional distress among grandparents caring for grandchildren with higher levels of behavioral and medical problems (Burnette, 1999; Emick & Hayslip, 1999; Kelley, 1993; Pruchno & McKenney, 2002; Sands et al., 2000). Other studies have reported that grandparents who perceive an increasing sense of burden associated with the caregiver role experience greater emotional distress (Dowdell, 1995; Kelley, 1993; Pruchno & McKenney, 2002). Though the broader caregiver burden literature reports no clear pattern of the influence of disruptive behaviors and severity of impairment on the

caregivers' well being (both physical and emotional), this present study's findings are consistent with a major theme in the research literature on grandparents raising grandchildren that indicates increasing caregiver demands predict lower levels of grandparents' emotional well being.

THE FINDINGS IN THE CONTEXT OF THE CONCEPTUAL MODEL

The principal aim of this study was to examine whether neighborhood conditions and AOD consumption are significant predictors of emotional well being among grandparents raising grandchildren. In the conceptual model or theoretical framework which undergirds this study, grandparents' sense of personal control plays a prominent role. Although no claim is made that the findings support the theory that postulates the relationship between AOD consumption and perceived neighborhood risk to grandparents' emotional well being is mediated by their sense of personal control, as theorized, the present study indicates that grandparents' emotional well being is impacted by drug misuse and alcohol use and perceived neighborhood risk (albeit by marginal evidence), *in addition to* individual demographic characteristics and caregiver demands. In this vein, the current study contributes to the research literature by identifying understudied predictors of grandparents' emotional well being and illuminates a promising conceptual perspective to guide future research using theoretically grounded variables.

IMPLICATIONS FOR SOCIAL WORK

The demographic trends reviewed earlier in this study indicate the rapid growth of grandparent-headed households in the U.S., and it is estimated that 11% of all

grandparents have assumed the primary caregiver role for a grandchild at some point in her/his life. In addition, it is expected that grandparents raising grandchildren in state child welfare systems across the U.S. will steadily increase given public policy that favors placement of children with kin over traditional non-kin foster families (DHHS, 2000; Hegar & Scannapieco, 1999; Pecora, Whittaker, Maluccio, & Barth, 2000). Thus, it is likely that social workers, and an array of human services providers, will interact with grandparent caregivers, professionals, and policy makers on an array of matters related to the well being of this group of surrogate parents and the children in their care. This study's findings have important implications for social work practice, public policy, and the important task of raising the awareness among the general public about the needs of this subgroup of grandparents who play a vital role in caring for vulnerable children.

Demographic Characteristics & the Diverse Needs of Grandparent Caregivers

Social workers can use this study's demographic findings to educate the public and other professionals about grandparents raising grandchildren and their needs. These demographic findings can be of value to staff of an increasing number of developing community-based services centers (Roe & Minkler, 1999; Smith et al., 2001) that directly serve grandparents and make resources available for public education and program planning purposes (e.g., needs assessment, funding, modification in traditional protocols of professional practice) to meet the special needs of this group of surrogate parents. For example, the wide variation in age apparent among these grandparents implies that an array of professional literatures and resources relevant to young, middle-aged, and older adults should inform program development initiatives to meet the needs of these

surrogate parents. Also, because it is known that social and medical service utilization rates and help-seeking behaviors vary by age and race/ethnic background (Beckett & Dungee-Anderson, 2000; Padgett, 1995b), these demographic findings indicate that special recruitment strategies may be needed and differ from the traditional outreach initiatives. In this vein, while 96.5% of this population are grandmothers, service delivery strategies should also aim to target grandfathers who the primary caregivers of their grandchildren, particularly among agencies that have traditionally served "women and children." Grandfather caregivers reported higher levels of emotional well being but may still benefit from various services.

Although this study did not show the vast heterogeneity among Native-American, Asian, White, Black and Hispanic groups, the data can be used to describe the racial and cultural makeup of this group of grandparent caregivers. These research findings suggest that program planners and practitioners must address the degree to which language and culture can be used to facilitate service delivery aimed at subpopulations of surrogate parents.

This study shows marked variation in socio-economic status indicators among this population of grandparents. These data indicate that services and program initiatives currently aimed at addressing the needs of families living in poverty are also relevant to many families comprised of grandparents and the grandchildren in their care. As the study data show, 17.3% of grandparents raising their grandchildren reported an annual household income of less that $10,000. Social workers should draw attention to trends in which states place children with their grandparents who are well-intentioned, but live in

poverty and may need financial resources. Remaining with family is often vitally important for the child, but without providing adequate resources, placement of grandchildren with these surrogate parents is tantamount to subjecting these children to "state-sanctioned poverty" (Hegar & Scannapieco, 1995, p. 213).

On the other hand, these demographic data indicate that most grandparents raising their grandchildren are not living in poverty, but may need assistance in resolving issues related to medical insurance carriers that refuse to cover grandchildren or retirement communities that prohibit or do not welcome children. The poverty level is also an inadequate measure of family economic needs. Thus, many grandparents who are not living in poverty by official federal government definition may nonetheless be forced to liquidate many of their assets and life savings to meet the needs of the grandchildren in their care and/or qualify for means-based public assistance programs (Minkler & Roe, 1996). The extent to which public assistance is available to grandparents raising grandchildren varies considerably across states (DHHS, 2000; Smith et al., 2001) and potential government funding streams for resources are contingent upon the availability of excess dollars from the Temporary Assistance for Needy Families (TANF) state-administered federal program and the priorities established by the state.

This study's finding that 41.8% of this population of grandparent caregivers have less than a high school education has implications for accessing needed medical and social services via systems that are increasingly tied to computer usage and the Internet. This pathway to services may have negative implications for grandparents who are not accustomed to using such technology, have inadequate reading and writing skills for such

purposes, and in light of public service agencies that have markedly reduced staff available to explain and facilitate service delivery. The rules, regulations, and applications and recertification processes can be overwhelming. This study's demographic findings on education and annual household income suggest that program planning for many among this population of caregivers should include provisions for concrete services, advocacy, child daycare, and an adult education component.

This study's demographic findings indicate that grandparent caregivers are heterogeneous on many demographic characteristics. This heterogeneity presents social workers and other human service professionals' with unique challenges for advocacy and program and public policy initiatives to address the diverse needs of this population.

Perceptions of Neighborhood Conditions & Emotional Well Being

Consistent with the Person-in-Environment approach to social work (Karls & Wandrei, 1995), social work practitioners who work with grandparents raising their grandchildren should routinely probe grandparents' perceptions about their neighborhoods as part of a thorough psychosocial assessment (Conway & Stricker, 2003; Goldstein, 1995). To ensure the assessment targets the specific neighborhood constructs relevant to this study, items based on the "perceived neighborhood risk" measure (described in this study) or the Ross-Mirowsky Perceived Neighborhood Disorder Scale (1999) can be helpful in understanding how grandparents view the conditions of their neighborhoods. While it is possible that issues tied to negotiating the caregiver role may constitute the presenting problems identified by these surrogate parents, this study suggests that perceptions of neighborhood conditions may be linked to grandparents'

emotional well being in cases where psychological distress is a clinical concern. In addition, given that support groups are often used as interventions with grandparent caregivers (Kopera-Frye, Wiscott, & Begovic, 2003; Scannapieco, 1999; Wohl, Lahner, & Jooste, 2003), a session could be devoted to discussing individual perceptions of neighborhood conditions or incorporated as part of a psychoeducational module on factors that may contribute to emotional distress.

Little is known about the living conditions of grandparents raising their grandchildren (Fuller-Thomson & Minkler, 2003; Kaufman & Goldberg-Glenn, 2000). The findings of this study may benefit social workers working in administration, public policy, and community development as the conditions of neighborhoods can be discussed in terms of public mental health and quality of life issues. It is imperative that any community-specific initiative aimed at decreasing neighborhood risk should involve a program evaluator in the planning stages to ensure that the specific characteristics of neighborhood conditions are targeted and the outcomes of any intervention are documented.

Alcohol and Drug Consumption & Emotional Well Being

The most important implication of this study's findings concerning the 1) prevalence rates for drug misuse (particularly prescription drugs) and alcohol use and 2) their combined negative impact on grandparents' emotional well being is clear: social workers should routinely assess grandparents' alcohol and drug use as part of a thorough psychosocial assessment. The use of age-appropriate AOD screening instruments available that have been shown to be reliable and valid instruments is advisable and

should be used by the practitioner, if possible (McNeece & DiNitto, 2005). In addition, given the use of support groups with this population of surrogate parents, introducing the topic of emotional well being and AOD use during support group meetings or integrated in a more focused educational module can lead to other opportunities to individually assess the grandparents' AOD use or refer the caregiver to a specialist in substance abuse assessment and treatment. Although grandparent's emotional well being was the focus of this study, it is important to emphasize the potential negative impact of drug misuse on these surrogate parents' physical health (Finlayson, 1997; Greenfield, 1995; McNeece & DiNitto, 2005).

This study's findings indicate that many grandparent caregivers may be in need of AOD assessment and treatment services. SAMHSA (2001b; 2001c) estimates that the need for AOD use treatment will steadily rise as an increasing number of individuals in "baby-boom" generation enter grandparenthood, many of whom will likely assume the role of surrogate parent for their grandchild. Clearly, there is a need for social workers and other human service professional to be aware of the demographic trends and foreseeable increase in demand for AOD assessment and treatment services among this population of caregivers. It is imperative that social workers develop the skills needed to meet these projected demands for AOD services in light of the age, culture, and gender differences relevant to substance abuse treatment (Davis & DiNitto, 2005; McNeece & DiNitto, 2005; Vinton & Wambach, 2005).

The topic of AOD use among grandparents raising grandchildren appears to be a taboo topic among many researchers, as if shedding light on this topic would cast these

surrogate parents in a negative light and promote the "continued prevalence of a bad seed theory of grandparent caregivers" (Minkler, 1999, p. 212). If this is true, it is unfortunate as this study's findings indicate that many grandparent caregivers are in need of AOD assessment and treatment, and the implications of not receiving these services is prolonged pain and suffering for this group of surrogate parents.

Grandparent & Grandchild Well Being

The well being of grandparents and the grandchildren in their care are interdependent. Increasing knowledge about the factors that influence grandparents' well being has important implications to the welfare of the grandchildren in their care. Factors that positively impact grandparents' well being are likely to increase the caregivers' capacity to ensure the safety, permanence, and well being of the grandchildren in their care. For many children, non-kinship foster care is the only placement option available if the grandparent(s) with whom they are living, looses the capacity to parent them. Thus, this study's findings contributes to the accumulating information available to social workers and other human service professionals that can be used to develop direct practice and policy interventions aimed at ameliorating the factors that negatively impact grandparents' well being and increasing the capacity of these surrogate parents to provide a nurturing home environment the grandchildren in their care.

LIMITATIONS OF STUDY

This study's findings can only be generalized to the NSCAW CPS sampling frame, i.e., a national public child welfare population and cannot be generalized to all grandparent caregivers in the United States. However, the missing data analysis (see

Appendix B) shows statistically significant non-random patterns of missing data (particularly on the dependent variable) that raise legitimate questions about the study's external validity. The sample may under-represent grandparents 1) without a secondary caregiver in the home, 2) who are Black, non-Hispanic, and 3) are non-permanent caregivers. This observation is based on the finding that levels *within* each of the variables labeled secondary caregiver in the home, race/ethnicity, and grandparents status were not equally likely ($p \leq .01$) to have missing data on the dependent variable.

Another important limitation concerning the study's external validity pertains to findings based on AOD study variables. Non-permanent grandparent caregivers were not asked about their AOD use (as described in Chapter IV) and the findings based on AOD measures can only be generalized to "permanent" grandparent caregivers. These findings should not be interpreted to mean that "non-permanent" grandparent caregivers do not use alcohol or drugs; since this sub-group of surrogate parents was not asked about AOD use.

Another study limitation pertains to the logic of causal order among the study variables. Throughout this study perceived neighborhood risk and AOD consumption were discussed in terms of predictors of grandparents' emotional well being. However, because this study's findings are based on cross-sectional survey data, it is not possible to rule out alternate cause-effect relationships between the study variables. For example, perhaps individuals with low levels of emotional well being are more likely to have less resources and experience unemployment which substantively limits the choices of neighborhoods in which they can afford to reside; from this perspective, low levels of

emotional well being precede moving to a neighborhood characterized by high levels of risk. In addition, perhaps pervasive beliefs reflecting pessimism, fatalism, or other similar cognitions that coexist with low levels of emotional well being (e.g., clinical depression) is the reason why these caregivers perceive high levels of risk in their neighborhoods, not the actual characteristics of the neighborhood per se. Likewise, it is possible that low levels of emotional well being cause drug misuse and heavy drinking. A longitudinal research design could be used to more clearly identify the factors that cause changes in grandparents' emotional well being.

Another limitation of this study concerns the measure of "perceived neighborhood risk." This measure had high internal consistency reliability, although its construct validity renders this index of neighborhood conditions an imprecise measurement. While "perceived neighborhood risk" was shown to have factorial construct validity, neither convergent nor discriminant construct validity was demonstrated. In addition, the statistical evidence that was used to support this study's claim that grandparents' emotional well being is marginally related to perceived neighborhood risk was based on evaluating the coefficient for this independent variable at the 90-percent confidence level, although other national studies have used the 90-percent confidence levels in evaluating the significance of parameter estimates in the research literature on this topic (Minkler et al., 1997; US Census, 2000).

The specific measures of AOD use that were significantly related to grandparents' emotional well being are important to emphasize as a study limitation. First, this study's findings indicated that *specific combinations* of drug misuse and alcohol use are

significantly related to grandparents' emotional well being, not simply drug misuse or alcohol use per se. Secondly, these findings were based on an exploratory analysis and it was not previously hypothesized that *specific combinations* of drug misuse and alcohol use would be significantly related to grandparents' emotional well being.

Another limitation of this study stems from the correction made to account for the survey design effect (increase in variation due to stratification, cluster, and unequal weighting used in the NSCAW sampling design). In this study, statistical significance of each parameter estimate was based on a systematic increase of the standard error estimate by a factor of 1.2, as recommended by the NSCAW research team. This analytical treatment of standard errors is unique to the analysis of the NSCAW General Use Data Set and an approximate survey design effect correction. A more precise estimate of the standard error is possible using the NSCAW Restricted Version data (see Chapter IV).

Another potential study limitation concerns the findings of a series of regression diagnostics shown in Appendix C. The results of these diagnostics do not preclude the use of multivariate linear regression as the model for data analysis as used in this study, although a more thorough discussion of this topic is provided in Appendix C.

RECOMMENDATIONS FOR FUTURE RESEACH

Little is known about grandparents raising their grandchildren who experience high levels of positive affect (Minkler et al., 1997; Pruchno & McKenney, 2002). Thus, important contributions to the research literature can be made by future studies that examine the factors which promote high levels of emotional well being among grandparents raising grandchildren, to balance the extant focus on predictors of

psychological distress. Future study of the factors that promote high levels of emotional well being may also prove invaluable in building knowledge that can be used to reduce psychological distress among these grandparent caregivers. In addition, because this study's findings were based on a random sample of grandparents within state child welfare systems across the U.S., future comparative studies between this population of caregivers with those surrogate parents not involved with these systems may also shed light on the factors that contribute to such high levels of emotional well being evident among grandparents in this study.

In future studies that examine the relationship between neighborhood conditions and grandparents' emotional well being, the Ross-Mirowsky's Perceived Neighborhood Disorder Scale (Ross & Mirowsky, 1999) is one of several possible indices that could be used by researchers and can facilitate the meaningful comparison of research findings across studies. Neighborhood indices of theoretical constructs that are shown to have a positive impact on grandparents' emotional well being should also be a focus of future research. A qualitative or mixed-methods research design can be used to identify the specific characteristics of neighborhoods that positively impact grandparents' emotional well being.

Future studies that examine the relationship between alcohol and drug consumption to grandparents' emotional well being would be well advised to use diagnostic measures of AOD disorders, in addition to indices of consumption (quantity and frequency). The use of such measures will enable meaningful comparisons with reports in the broader AOD research literature. In addition, research on prescription and

over-the-counter drug abuse prevalence rates and the relation of these types of drug abuse to grandparents' emotional well being will likely inform the development of AOD assessment and treatments services for this population of caregivers.

Future research is needed to examine the theorized mediating role of personal control as proposed in this study's conceptual model. In this vein, future research could examine the potential relationship between sense of personal control and grandparents' physical and emotional well being.

This study showed that grandparents' emotional well being was significantly related to several factors classified in this study as 1) grandparent demographic characteristics/resources and 2) grandchild demographic characteristics/caregiver demands. Very little is known about grandfathers who assume the role of surrogate parent (primary caregiver) for a grandchild (Fuller-Thomson et al., 1997; Szinovacz et al., 1999) and men who assume other caregiver roles (Thompson & Kramer, 2002). Given the high levels of grandfathers' emotional well being, it is important to examine the factors that contribute to their mental health and contribute to their accepting the role of surrogate parent for their grandchild. Although a general pattern reported in the broader research literature indicates females have lower levels of emotional well being compared to males (Mirowsky & Ross, 2003), few men have assumed the role of caregiver of their grandchildren. Caregiving by men is a not a normative role in the U.S. (Thompson & Kramer, 2002) and more focused study on gender differences among caregivers will contribute to a better understanding of the well being among grandparents raising grandchildren.

In this study, "Other, Non-Hispanic" grandparents had significantly higher levels of emotional well being than "White, Non-Hispanics." Because Asian Americans and Native American likely comprise significant proportions of the group identified as "Other, Non-Hispanic,[36]" research is needed to study the emotional well being of these groups of surrogate parents because little that is known about these grandparents (Kamo, 1998), and there is a poor understanding of cross-cultural differences among grandparents, in general (Ikels, 1998; Kopera-Frye & Wiscott, 2000). Future researchers must also keep in mind that a great deal of cultural heterogeneity exists within Asian and Native American populations and other racial and ethnic groups as well (Jackson, Antonucci, & Gibson, 1995). In this vein, a promising direction for future research can examine the role of culture in shaping one's sense of person control and mediating the relationship between culture and emotional well being as proposed in the conceptual model. In terms of the state of the current research on the study of the impact of culture on grandparents emotional well being, it is of interest that Burnette's (1999) study was the first published that used a sample of Latino grandparents.

A final recommendation for future research is the study of the relationship of grandparent caregivers' age and their emotional well being. In addition to this study's findings, several researchers have reported that older grandparent caregivers have higher levels of emotional well being compared to those who are younger (Burnette, 1999a; Minkler et al., 1997; Ruiz, 2004; Sands et al., 2000). Future researchers may examine

[36] In the NSCAW General Use Data Set, 6.4% and 3.7% of all grandparents raising grandchildren (primary caregiver) were identified as belonging to the Native Indian/Alaskan and "Other" race, respectively.

differences in emotional well being by age in terms of role conflict and strain (Burnette, 1999b; Ruiz, 2004), coping styles (Folkman, Lazarus, Pimley, & Novacek, 1987), cumulative daily hassles and self-efficacy (Holahan & Holahan, 1987), and changes in personal control through the life course (Mirowsky & Ross, 2003).

APPENDIX A

CONCEPTUAL AND EMPIRICAL DEVELOPMENT OF PERCEIVED NEIGHBORHOOD RISK

Conceptual and Empirical Development of Perceived Neighborhood Risk

The NSCAW nine-item Community Environment Scale (CES) (Table A.1) was used to construct an independent variable that would index characteristics of the neighborhood conditions in which grandparents and their grandchildren live. The CES was developed by the NSCAW research team and is comprised of several items adapted from a separate survey used by Furstenburg et al. (1999) to study urban families. However, no reliability or validity data are reported on the CES instrument used in the NSCAW. Dr. Richard Barth, a Co-Principal Investigator of the NSCAW, noted that CES items have not received analytical attention to date (personal communication, February 8, 2004).

According to the NSCAW Reference Manual, the CES was used to measure "neighborhood factors" (Dowd et al., 2003, p. 50), although no empirical data are available to discern the nature of the "factors" measured by the NSCAW CES. While a review of the content of the items in Table A.1 suggests the CES items tap a construct similar to neighborhood disorder (Mirowsky & Ross, 1999; Skogan, 1990), this researcher conducted a principal components (PCA) and exploratory factor analyses to 1) identify whether underlying factors could be detected among the nine items that comprise the CES, and 2) develop a measure to index the neighborhood conditions in which grandparents and their grandchildren live. The PCA conducted adheres to Hair et al.'s (1998) recommendations. Appendix A shows the PCA and a descriptive analysis of each CES item.

Table A.1: NSCAW CES Items

Each respondent is asked to endorse one of the following items in terms of (1) not a problem at all; (2) somewhat of a problem, or (3) a big problem in your neighborhood:
Item 1: Assaults and muggings? Would you say this is….
Item 2: Delinquent gangs or drugs gangs? Would you say this is… (and so on through item 5).
Item 3: Open drug use or drug dealings?
Item 4: Unsupervised children?
Item 5: Groups of teenagers hanging out in public places and making a nuisance of themselves?

For these next items, please think about how your neighborhood compares to most other neighborhoods.
Item 6: Is your neighborhood…
1 = safer,
2 = about the same, or
3 = not as safe as other neighborhoods?
Item 7: Does your neighborhood have…
1 = more neighbors help each other
2 = about the same number of neighbors help each other, or
3 = fewer neighbors help each other than most neighborhoods?
Item 8: Does your neighborhood have…
1 = more involved parents,
2 = about the same number of involved parents, or
3 = fewer involved parents than most neighborhoods?
Item 9: Is your neighborhood…
1 = a better placed to live,
2 = about the same, or
3 = a worse place to live than most neighborhoods?

Descriptive Analysis of CES Items

Table A.2 presents descriptive data on each CES item based on the unweighted sample selected for this study. In addition, Table A.2 also shows the population estimate for each CES item based on an application of the NSCAW national weights to the unweighted CES variables.[37] Table A.2 shows that CES item 8 had the lowest response rate as observed in both the unweighted sample (91.2%) and across population estimates for each CES item (90.5%). CES item 6 had the highest response rate at 99.6% and 99.7% based on the unweighted sample and population estimate, respectively. In

[37] A discussion on the NSCAW sampling weights, design effect, and population estimates is provided later in this chapter (see pp.). The demographics section of Chapter V also provides a detailed description of how the population estimates are derived. The procedures used to calculate parameter estimates are described in Dowd et al. (2003) and will be discussed later in this chapter.

addition, 87.5% and 88.4% of the cases had complete data on all CES items based on the unweighted sample and population estimate, respectively. Table A.2 shows that the unweighted sample compared to the population CES mean estimates are 1) markedly similar and 2) the range of values is consistently 1 – 3 across each CES item.

Table A.2 shows that the internal consistency of the nine CES items is high (alpha coefficient = .862 for the population estimate) although what the items measure is not clear. Thus, a PCA and exploratory factor analyses was needed to determine whether the CES has a one-dimensional or multi-dimensional underlying factor structure. A further description of the perception of neighborhood characteristics among grandparents raising grandchildren is presented in Chapter V using the variable constructed based on the following analyses.

Table A.2: CES Item Means, Standard Deviations, & Standard Errors

CES Items	Unweighted Sample n[1]	Population Estimates (Weighted Sample)
1. Assaults and muggings		
Mean	1.12 (460)	1.16
95% CI	1.09 – 1.16	1.07 – 1.26
SD[2]	.375	.505
SE[3]	.018	.050
Range	1-3	1-3
2. Delinquent or drug gangs		
Mean	1.24 (455)	1.37
95% CI	1.19 – 1.29	1.16 – 1.57
SD	.534	.824
SE	.026	.104
Range	1-3	1-3
3. Open drug use or dealing		
Mean	1.22 (454)	1.35
95% CI	1.17 – 1.27	1.16 – 1.54
SD	.534	.799
SE	.024	.095
Range	1-3	1-3

Table A.2, Continued

CES Items	Unweighted Sample n[1]	Population Estimates (Weighted Sample)
4. Unsupervised children		
Mean	1.26 (458)	1.24
95% CI	1.21 – 1.31	1.13 – 1.34
SD	.535	.587
SE	.024	.052
Range	1-3	1-3
5. Groups of teens hanging out		
Mean	1.27 (460)	1.31
95% CI	1.21 – 1.32	1.19 – 1.44
SD	.559	.679
SE	.026	.064
Range	1-3	1-3
6. Neighborhood is … than/as most		
Mean	1.44 (463)	1.43
95% CI	1.39 – 1.50	1.29 – 1.57
SD	.599	.734
SE	.028	.071
Range	1-3	1-3
7. Neighbors help each other		
Mean	1.83 (442)	1.80
95% CI	1.75 – 1.90	1.58 – 2.01
SD	.780	1.020
SE	.038	.109
Range	1-3	1-3
8. Neighborhood involved parents		
Mean	1.87 (424)	1.89
95% CI	1.78 – 1.93	1.71 – 2.08
SD	.752	.943
SE	.037	.095
Range	1-3	1-3
9. Neighborhood safe to live		
Mean	1.45 (458)	1.43
95% CI	1.40 – 1.50	1.29 – 1.57
SD	.560	.708
SE	.027	.071
Range	1-3	1-3
Cronbach's Alpha[5]	**.865**	**.862**

1. The sample size is listed directly under the mean in parentheses. Missing data on each CES items accounts for changing n by item.
2. Estimate of the population SD (sigma). Estimate of sigma was calculated as follows: Sigma = (SE of population mean) x square root [(number of observations)/design effect]
3. Estimates of design effect for CES items 1=4.51; 2=7.25; 3=6.42; 4=3.61; 5=4.09; 6=4.33; 7=5.09; 8=4.30; 9=4.61
4. Cronbach's Alpha across the nine CES items, listwise deletion method used and resulted in unweighted n = 409.

Testing Assumptions of Factor Analysis

Although Cronbach's alpha indicates that there is an underlying structure to the CES items, it does not indicate whether the CES has a one-dimensional or multi-dimensional structure. To examine the "dimensionality" of the CES items, a series of analyses were conducted to determine the degree to which substantive inter-correlations and shared variance exists among the CES items (see Hair et al., 1998).

Tables A.3 and A.4 show CES item correlation matrices for the unweighted sample and population estimates, respectively. According to Hair et al. (1998), a substantive number of the item-pair correlation coefficients (excluding the correlations represented on the diagonal) must equal or exceed .30 i.e., $r \geq .30$. While there is no specific number upon which to compare the recommended criterion of "substantive" and the adequacy of the number of correlation pairs must be evaluated in the context of the sample size, Hair et al. consider a percentage of approximately 50% as "adequate." Table A.3 shows that 91.67% (33) of the correlation pairs have correlations of $r \geq .30$ and each one is statistically significant ($p \leq .05$). Table A.4 shows that 72.22% (26) of the correlation pairs have correlations of $r \geq .30$ and each one was statistically significant ($p \leq .05$) after applying national probability weights.

Table A.3: Correlation & Measure of Sampling Adequacy Coefficients Among CES Items[1]

Unweighted Sample: (n= 407)[2]

	1	2	3	4	5	6	7	8	9
1	**.901[3]**								
2	.613	**.816**							
3	.514	.784	**.846**						
4	.328	.499	.576	**.885**					
5	.442	.608	.633	.618	**.907**				
6	.386	.481	.489	.456	.485	**.839**			
7	.216	.327	.291	.266	.267	.321	**.793**		
8	.160	.239	.282	.266	.279	.366	.502	**.786**	
9	.345	.412	.428	.352	.413	.671	.352	.320	**.823**

1. The following codes correspond to each CES Item: 1. Assaults and muggings, 2. Delinquent or drug gangs, 3. Open drug use or dealing, 4. Unsupervised children, 5. Groups of teens hanging out, 6. Neighborhood is … than most (safe), 7. Neighbors help each other, 8. Neighborhood involved parents, 9. Neighborhood is … than most (better/same/worse).
2. Listwise deletion was used to derive sample size.
3. The coefficients listed on the diagonal (**bold font**) of Table 5.14 are taken from the diagonal of the anti-image correlation matrix and is an accepted measure of sampling adequacy. Items on the matrix diagonal, with values below .50, should be considered for removal before a factor analysis is conducted. All other values (off diagonal) are correlation coefficients.

To assess the proportion of variance each CES item has in common with the other items, two measures of sampling adequacy were examined. First, none of the individual item measures of sampling adequacy on the diagonal of the anti-image correlation matrices (across the sample and population estimate data) have a coefficient below .50 (see data on the diagonal in Tables A.3 and A.4). Hair et al. (1998) recommend that individual items with a measurement of sampling adequacy below .50 should not be included in a factor analysis. Second, the Kaiser-Meyer-Olkin (KMO) *overall* measure of sampling adequacy (MSA) is .847 and .801 for the sample and population estimate data, respectively. KMO values range from 0 -1 and are an index of how well each item is predicted by all of the other items. KMO values below .5 are to be interpreted as unacceptable while values above .8 are "meritorious" (Hair et al., 1998). An evaluation of the inter-item correlations and measures of sampling adequacy in Table A.3 and Table A.4 support the assumption of an underlying structure among CES items.

Table A.4: Correlation & Measure of Sampling Adequacy Coefficients Among CES Items[1]

Population Estimate: Weighted Sample

	1	2	3	4	5	6	7	8	9
1	**.884**[2]								
2	.606	**.765**							
3	.505	.836	**.776**						
4	.343	.470	.615	**.800**					
5	.527	.684	.683	.538	**.917**				
6	.492	.604	.590	.420	.510	**.830**			
7	.038	.240	.172	.095	.146	.316	**.626**		
8	.025	.144	.237	.187	.168	.322	.492	**.669**	
9	.397	.534	.564	.306	.507	.746	.341	.322	**.801**

1. The following codes correspond to each CES Item: 1. Assaults and muggings, 2. Delinquent or drug gangs, 3. Open drug use or dealing, 4. Unsupervised children, 5. Groups of teens hanging out, 6. Neighborhood is … than most (safe), 7. Neighbors help each other, 8. Neighborhood involved parents, 9. Neighborhood is … than most (better/same/worse).
2. The coefficients listed on the diagonal (**bold font**) of Table 5.15 are taken from the diagonal of the anti-image correlation matrix and is an accepted measure of sampling adequacy. Items on the matrix diagonal, with values below .50, should be considered for removal before a factor analysis is conducted. All other values (off diagonal) are correlation coefficients.

Principal Component Analysis

Using the total variance across the CES items, a PCA was conducted to extract and examine the underlying factors that comprise the CES. The cases/CES item ratio was 45.2/1 (via listwise deletion method), which exceeds the minimum ratio of 5/1 (50 cases is a minimum requirement) recommended for a factor analysis.

Tables A.5 and A.6 show the results of a PCA conducted on the nine item CES and the total variance explained by each component. Based on the latent root criterion, each factor extracted should account for the variance of at least one (1) variable for that factor to be considered significant. Hair et al. (1998) recommend that factors with eigenvalues less than one be considered non-significant. However, using the "percentage of variance criterion," at least 60% of the total variance should be explained by the proposed factor solution. Table A.5 and Table A.6 show that two factors explain 62.7% and 66.3% of the total variance among the nine CES items, respectively. If three factors

are extracted, as shown in Table A.5 and Table A.6, 71.8% and 75.1% of the total variance is explained across the nine CES items, respectively.

Table A.5: Extraction of Component Factors & Total Variance Explained
Unweighted Sample: (n=407)

Component	Initial Eignevalues[1]			Rotation Sums of Squared Loadings[2]		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.420	49.106	49.106	3.566	39.624	39.624
2	1.226	13.618	62.725	2.079	23.101	62.725
3	.816	9.067	71.791			
4	.738	8.204	77.995			
5	.501	5.567	85.561			
6	.433	4.813	90.375			
7	.364	4.045	94.420			
8	.309	3.431	97.851			
9	.193	2.149	100.000			

1. Eigenvalues and % values remain same for 2-factor and 3-factor solutions.
2. Rotation Sums of Squared Loadings are specific to 2-factor solution. 3-factor solution values are as follows: Component 1- Total: 3.209; % of variance: 36.655; cumulative %: 35.655; Component 2- Total: 1.666; % of variance: 18.509; cumulative %:54.164 ; Component 3- Total:1.586; % of variance:17.627; cumulative %: 71.791.

Table A.6: Extraction of Component Factors & Total Variance Explained
Population Estimates: Weighted Sample

Component	Initial Eignevalues[1]			Rotation Sums of Squared Loadings[2]		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.504	50.045	50.045	4.085	45.389	45.389
2	1.467	16.301	66.346	1.886	20.956	66.346
3	.791	8.789	75.132			
4	.578	6.417	81.549			
5	.507	5.630	87.178			
6	.441	4.895	92.074			
7	.367	4.072	96.146			
8	.232	2.575	98.721			
9	.115	1.279	100.000			

1. Eigenvalues and % values remain same for 2-factor and 3-factor solutions.
2. Rotation Sums of Squared Loadings are specific to 2-factor solution. 3-factor solution values are as follows: Component 1- Total: 2.950; % of variance: 32.773; cumulative %: 32.773; Component 2- Total: 2.100; % of variance: 23.339; cumulative %: 56.112; Component 3- Total:1.712; % of variance: 19.020; cumulative %: 75.132.

Tables A.7 and A.8 show the results of a two and three principal components rotated factor solution for the unweighted sample and population estimates. The factor loading values for each item in the rotated factor matrices represent the correlation between each CES item and a factor. Thus, higher factor loading values indicate that a CES item is representative of a specific factor. Based on a significance table for factor

loadings (Hair et al., 1998, p. 112), factor loadings of at least .30 are statistically significant ($p \leq .05$) with a sample size of 407. In addition, the statistical power of the factor analyses in Tables A.7 and A.8 is estimated to be .80.[38]

In Tables A.7 and A.8, factor loadings are shaded if the values are $\geq .30$. The two-factor solutions in Tables A.7 and A.8 show that CES items 1-5 and 7-8 substantively load on factors 1 and 2, respectively. Table A.8 shows that CES items 6 and 9 have higher loadings on factor 1 compared to factor 2, but substantively load on both factors in Table A.7 based on the unweighted sample data. A possible reason why CES items 6 and 9 do not clearly load on only one factor is that these items do not focus respondents' attention on observable neighborhood conditions (i.e., feel "safer-not as safe" and "better-worse place to live"). However, there is evidence to support that CES items 6 and 9 are empirically linked to factor one using a two-factor solution (Table A.8).

In the three-factor solution shown in Table A.7, with the exception of CES item 6 (with significant factor loadings on factors 1 and 2), all items have factor loadings of $> .30$ on not more than one factor (unweighted sample data). However, with reference to the population estimates data, the three-factor solution in Table A.8 is unclear, although CES items 7 and 8 "hang together" well across the two-factor and three-factor solutions (see Tables A.7 and A.8).

[38] All statistical power estimates are based on the unweighted sample size and not the estimated size of the population.

Table A.7: Rotated Two & Three Factor Matrix[1]: Unweighted Sample: (n=407)

CES Items	2-Factor Solution		3-Factor Solution		
	Factors		Factors		
	1	2	1	2	3
1. Assaults and muggings	.719	.064	.694	.202	.001
2. Delinquent or drug gangs	.853	.172	.854	.184	.141
3. Open drug use or dealing	.845	.198	.844	.198	.162
4. Unsupervised children	.685	.240	.684	.184	.209
5. Groups of teens hanging out	.777	.221	.763	.231	.167
6. Neighborhood is … than most (safe)	.551	.532	.362	.806	.197
7. Neighbors help each other	.130	.787	.183	.132	.829
8. Neighborhood involved parents	.079	.825	.114	.187	.840
9. Neighborhood is … than most (better)	.455	.563	.241	.873	.191

1. Varimax rotation with Kaiser normalization.

Table A.8: Rotated Two & Three Factor Matrix[1]
Population Estimates: Weighted Sample

CES Items	2-Factor Solution		3-Factor Solution		
	Factors		Factors		
	1	2	1	2	3
1. Assaults and muggings	.749	-.082	.745	.262	-.185
2. Delinquent or drug gangs	.870	.144	.710	.522	.065
3. Open drug use or dealing	.872	.170	.575	.688	.123
4. Unsupervised children	.672	.069	.133	.893	.103
5. Groups of teens hanging out	.823	.094	.555	.627	.046
6. Neighborhood is … than most (safe)	.696	.442	.774	.213	.339
7. Neighbors help each other	.052	.835	.186	-.036	.815
8. Neighborhood involved parents	.065	.825	.006	.198	.847
9. Neighborhood is … than most (better)	.622	.494	.775	.101	.385

1. Varimax rotation with Kaiser normalization.

Selection of Factor Solution & Internal Consistency of Index

Based on the series of analyses showing the factor loadings from the principal components analyses conducted on the 1) population estimate data (weighted sample) and 2) specifying a minimum eigenvalue of 1, it was decided that the 2-factor solution for the nine-item CES would be retained. Table A.9 shows the alpha coefficient for Factor 1 demonstrates a high level of reliability (.885) while Factor 2 is marginally acceptable at .655. It is plausible that the relatively low alpha coefficient for Factor 2 is because only two indicators (CES items 6 and 7) do not efficiently tap the overarching construct.

At the onset of the empirical analysis, CES items 1-5 and items 7 and 8 were expected to "hang together" empirically as originally conceptualized based on the literature review on perceptions of neighborhood conditions, i.e., neighborhood disorder and ambient hazards. However, the empirical analysis indicates that the nine-item CES taps at least two separate overarching constructs, based on the responses of grandparents raising their grandchildren.

Table A.9: Alpha Coefficients for Perceived Neighborhood Risk Index: Factor 1 and Factor 2

Factors/CES Items	Unweighted Sample Alpha	Population Estimate Alpha
Factor 1 (CES Items 1-5, 6 & 9)	.866	.885
Factor 2 (CES Items 7 & 8)	.668	.654

Conceptual Identification of Factors and Index Construction

The results of the PCA and reliability analyses informs the identification of labels for two factors that are conceptualized as specific types of observable neighborhood conditions perceived by grandparents raising their grandchildren. Factor 1 (CES items 1-5, 6 & 9) is conceptualized, as "perceived neighborhood risk" and comprised of two dimensions, i.e., perception of "social order" (CES items 1-5) and "safe conditions" (CES items 6 & 9) in one's neighborhood. The perceived neighborhood risk index is the mean of the of the seven CES items (CES items 1-5, and 6 & 9). A higher index of neighborhood risk indicates that lower levels of 1) social order and 2) safe conditions are perceived to characterize one's neighborhood. Thus, the index of perceived neighborhood risk is a 1) measure of observable phenomena, 2) characteristic of the

neighborhood as perceived by grandparents, and 3) hypothesized to be linked to the emotional well being of grandparents raising grandchildren.

The emergence of Factor 2 (CES items 7-8) was unexpected and theory was not reviewed to conceptualize the related CES items as a construct for study. CES items 7 and 8 could be conceptualized as tapping an overarching construct named "perceived quality of neighborhood relations." However, because Factor 2 is an unstable measure, based on only two items, not a construct reflected in the study hypotheses, and plagued by a high rate missing data relative to Factor 1; Factor 2 will not be examined further in this study.

A Summary of the Construct of Perception of Neighborhood Risk

Perceived neighborhood risk is an index that measures the level of social order and safe conditions that characterize a neighborhood based on the perceptions of grandparents raising their grandchildren. Perceived neighborhood risk is conceptually similar to "perceived neighborhood disorder" (Latkin & Curry, 2003; Ross & Mirowsky, 1999; Skogan, 1990), "ambient hazards" (Aneshensel & Sucoff, 1996) and what Cutrona et al. (2000) refer to as "community context." Neighborhood disorder, ambient hazards, and community context have been linked to emotional well being (see Chapter II) and measured in previous studies by asking residents, with reference to the neighborhood in which they live, to describe perceived levels of open use and sale of drugs on the street; loud noise (e.g., arguing/fighting neighbors, gunshots, heavy traffic); sexual harassment or other forms of aggressive acts; graffiti; vandalism; broken street-lights; public drinking and/or gambling by loitering individuals; accumulating trash-filled lots and alleys;

deteriorating, abandoned, or poorly maintained buildings; open prostitution; and groups of youth regularly loitering in the neighborhood for extended periods of time with no adult supervision. According to Ross and Mirowsky (1999), increasing levels of neighborhood disorder can be perceived by residents as cues that indicate decreasing levels of social control and social order in the neighborhood.

The CES items used to construct the perceived neighborhood risk variable do not probe the perception of physical qualities of the neighborhood (e.g., perceived physical condition of buildings and streets, sanitary conditions, maintenance of vacant lots/yards, etc.) or the conceptual range of social order reflected in the measures of ambient hazards and neighborhood disorder reviewed. Therefore, it may not be appropriate to identify the constructed index in this study (perceived neighborhood risk) as "perceived neighborhood disorder."

The incorporation of the term "perceived" in the name of the constructed independent variable does not imply "unreliable" or "all in one's head." It is reasonable to expect that the perceptions grandparents raising grandchildren report about their neighborhood indicate social conditions that exist in the environment. According to a review by Ross and Mirowsky (1999), studies have reported moderate to high correlations neighborhood characteristics as perceived by residents and independent ratings made by researchers. Thus, because neighborhood properties are indeed "perceived," the construct of "perceived neighborhood risk" should not be interpreted as an inherently unreliable measure.

APPENDIX B

MISSING DATA ANALYSIS

MISSING DATA ANALYSIS

The principal aims of this appendix are to 1) describe the missing data among the variables used in the analyses conducted in this study, 2) identify a method for the treatment of missing data, 3) report the statistical power of the multivariate analyses conducted in this study, and 4) address the missing data analysis results in the context of generalizing the study findings to the population of interest. In addition, the information presented in this section may be useful to future investigators interested in acquiring the NSCAW General Use Dataset to study grandparents raising grandchildren contingent upon her/his research question(s). While the NSCAW is the best-known dataset containing a national probability sample of grandparents raising grandchildren, the missing data analysis identifies substantive missing data patterns that must be considered when making claims about the degree to which the study findings can be generalized to the population of interest, particularly when listwise deletion methods are used in evaluating data using multivariate analytic techniques.

WHAT ARE MISSING DATA?

The term "missing data" is defined as "information not available for a subject (or case) about whom other information is available" (Hair, Anderson, Tatham, and Black, 1998, p. 38). Cohen and Cohen (1983) maintain that an important feature of any data analysis protocol is a careful examination of the reason(s) and extent to which data are missing. The properties and degree to which missing data are randomly distributed throughout the data set have important implications in terms of 1) the available sample size, 2) imputation options, and 3) the ability to generalize study findings to the target

population. However, according to Allison (2002) "the vast majority of statistical textbooks have nothing whatsoever to say about missing data or how to deal with it" (p. 1).

The missing data analysis reported in this appendix section are informed by procedural guidelines recommended by Allison (2002), Hair et al. (1998), and Cohen and Cohen (1983). These scholars are unanimous in their recommendations that the objective of a missing data analysis is to determine the degree to which "randomness" characterizes the missing data process. A missing data process is defined as "any systematic event external to the respondent or any action on the part of the respondent that leads to missing data" (Hair et al., 1998, p. 38).

Two types of diagnostics were conducted in the following missing data analyses. The first type examined the percentage of missing data on each study variable, i.e., via a series of univariate analyses. The second type utilized diagnostic variables created to examine the randomness of missing data across study variables, i.e., via a series of bivariate analyses. The results of the missing data analyses are used to explain identified missing data processes and address imputation options. Most of the missing data analyses are shown in tables (Table B.1 - Table B.10) by the unweighted and weighted samples, although the results derived from the weighted sample will be the primary source to inform the following discussion on missing data in this study.

MISSING DATA BY STUDY VARIABLE

The percentage of missing data on each study variable is presented in Table B.1. According to a member of the NSCAW research team (A. Wall, personal

communication, February 9, 2004), data on a variable were interpreted as either 1) "valid" if there is a true measure of a characteristic of interest documented (example MCS score, age in years, etc.) or 2) "missing," regardless of the reason. Thus, because grandparents designated as "non-permanent" caregivers (68.6% of unweighted sample, see Chapter IV) were not administered several NSCAW survey modules to measure their AOD use and perception of social support, 69.5% and 68.6% of the data are missing on the grandparent-level *AOD* (alcohol use, drug misuse, alcohol and/or drug misuse) and *social support* variables, respectively. In addition, 38.7% of data on the unweighted variable *behavior* are missing primarily because 179 children in the care of a grandparent was less than 2 years of age at the time of the initial NSCAW interview, i.e., the CBCL was not designed to measure behavior and emotional problems of children < 2.

After applying the national weights to the sample, Table B.1 shows the missing data on the *AOD*, *social support*, and child-level *behavior* variables are 63.5%, 59.8%, and 21.1%, respectively. The marked decline evident in the population estimate of missing data on *behavior* is because of over-sampling of children under one year of age into the NSCAW sample, i.e., unweighted sample. Thus, a substantive missing data process is evident on the *AOD*, *social support*, and *behavior* variables and attributed to the design of the NSCAW.

A detailed descriptive analysis identified the reasons data were missing on each study variable and shown in Table B.2. For example, Table B.2 shows that the code "inadvertent skip" is a major factor explaining 61.9% of the missing data on *emotional well being* (72.6% after application of statistical weights) and "non-interview" (e.g., the

interviewer was not able to contact or follow-up with the caregiver) accounts for 100% of the missing data on the variable se*condary caregiver in the home*.

According to a NSCAW researcher contacted by this investigator, there is no particular methodology recommended by the NSCAW team, per se, for analytically treating the missing data codes i.e., how to methodologically address and/or impute coding that refer to "I don't know," or "inadvertent skip" (R. Barth, personal communication, February 8, 2004). With the exception of the *AOD*, *social support*, and *behavior* variables, it is emphasized that the remaining study variables have either low percentages or no missing data as shown in Table B.1.

In the most general terms from which to "benchmark" the level of concern that can be attributed to a percentage of data that are missing on a variable in this study, Hair et al. (1998) note that 8% is of "marginal concern" and Dr. Barth maintains that 5% on any variable is not likely to constitute a missing data problem (personal communication, February 8, 2004); assuming the statistical power of the analysis is not reduced to an unacceptable level as a result of the drop in sample size. Thus, based on these general "benchmark" guidelines, and a review of the data presented in Table B.1, an argument could be made that no further missing data analysis was warranted beyond the missing data process that has already been identified. For example, consider the percentage of missing data on "grandparent age" and the child-level variables labeled "years in grandparent home" and "health." However, before deciding on how missing data would be addressed in this study, an additional series of diagnostics were conducted to evaluate the degree to which randomness characterizes the missing data across the study variables.

RANDOMNESS OF MISSING DATA ACROSS STUDY VARIABLES

To evaluate the "randomness" of the missing data in this study, an analysis was conducted to examine the degree to which missing and valid data on any one variable are related to the measurement values (non-missing data) across each of the variables in the study using diagnostic procedures recommended by Hair et al. (1998). These diagnostics will provide information to evaluate questions similar to the following: is there a statistically significant relationship between "annual household income" and whether data are missing or not (valid) on emotional well being?

Evaluating the randomness of missing data has important implications to the findings of this study because the confidence placed on the validity of the parameter estimates is impacted by the degree to which the dependent variable represents a random sample of emotional well being scores among the target population of grandparents raising grandchildren. As follows, if missing data on the emotional well being variable are significantly related to levels of annual household income (or other study variables), this could be a source of bias introduced into the parameter estimates.

Method of Assessing Randomness of Missing Data

To examine the randomness of missing data: 1) diagnostic variables were created, 2) a series of matrices were constructed to analyze multiple bivariate relationships, and 3) criteria were developed to establish a standard of substantive significance to evaluate statistical tests of independence and compare group means. The primary source of information used to identify and explain patterns of missing data was the weighted sample data.

A unique dichotomous diagnostic variable (DGV) was created for each study variable (SV). More specifically, for each SV, all "missing values" were recoded as "0" and valid observations (non-missing values) were recoded as "1," on its unique DGV. The bivariate relationship between each DGV and SV was examined and represented in the matricies shown in Tables B.3 and B.4. And within each cell of the matrices in Tables B.3 and B.4, a unique bivariate relationship is referenced as a DGV:SV pair.

For example, in Tables B.3-B.7, the DGV:SV pair designated as 1:2 represents the bivariate relationship between missing/valid data (0 or 1) on *emotional well being* (DGV) and all valid measurement values on *perceived neighborhood risk* (SV). Thus, the DGV:SV pair designated as 1:2 shows data used to evaluate whether a statistically significant relationship existed between two perceived neighborhood risk means grouped by missing (0) or valid (1) data on *emotional well being*. In other words, is there a statistically significant relationship between the variable labeled "perceived neighborhood risk" and missing/valid data on emotional well being?

Contingent on the scale of measurement of the original study variables, a t-test or chi-square test of independence was conducted for each DGV:SV pair (i.e., DGV served as the grouping variable) within each matrix to detect the presence of statistically significant relationships. Statistically significant relationships, in combination with other diagnostic information, may indicate a non-random missing data process.

Conducting multiple statistical tests (e.g., t-tests) can increase the likelihood of Type I errors (Hair et al., 1998; Rubin & Babbie, 1997) and must be addressed when evaluating the statistical significance of bivariate relationships during a missing data

analysis. However, as a practical matter, it was determined that using a procedure such as the Bonferroni adjustment method would reduce the alpha level too low for the purpose of missing data diagnostics (i.e., flagging and identifying patterns) in light of the number of statistical relationships that were examined. Therefore, the missing data analyses conducted in this study used an alpha level of $p \leq .01$ as the standard for "*statistical significance,*" although bivariate relationships that are statistically significant at the $p \leq .05$ level are also reported in the following tables. An overall determination of the substantive significance of each bivariate relationship balanced two criteria: 1) the level of statistical significance with 2) the percentage of missing data on each variable.

RATIONALE FOR REPORTING MISSING DATA ANALYSIS FOR TWO SEPARATE SAMPLES

An obvious missing data process already identified indicates that any study finding based on measurements of AOD consumption and perceived social support can only be relevant to "permanent" caregiving grandparents, which is a sub-sample of the NSCAW CPS sample of grandparent caregivers. For this reason, two separate missing data analyses were conducted. The first missing data analysis includes all study variables, with the exception of the AOD and social support variables, and included data collected from both non-permanent and permanent grandparents. This missing data analysis shows how a sample size of 379 was derived. It is useful in evaluating the external validity of the multivariate analyses reported in for example, Table 5.13 where the sample is comprised of both "non-permanent" and "permanent" caregiving grandparents.

The second missing data analysis comprised only the sub-sample of permanent caregiving grandparents and incorporated all study variables, including the AOD and social support variables. This missing data analysis 1) shows how a sample size of 126 was derived and 2) is useful in evaluating the external validity of the multivariate analyses reported in Table 5.17, for example.

MISSING DATA ANALYSIS I: PERMANENT & NON-PERMANENT CAREGIVING GRANDPARENTS IN THE NSCAW CPS SAMPLE

Randomness of Missing Data

The matrices shown in Tables B.3 and B.4 present a first-level overview of the presence ("X"), or absence ("-"), of bivariate relationships ($p \leq .05$) between each DGV:SV pair. The shaded rows indicate that a DGV variable could not be created because its SV did not have any missing data. For example, in Tables B.3 and B.4, no DGV variable could be created for race/ethnicity (DGV: row 10) because each grandparent had a valid value on this SV (no missing data). A non-shaded "X" denotes the DGV:SV relationship is statistically significant at the $p \leq .01$ level. A closer examination of each DGV:SV relationship denoted by an "X" in Tables B.3 and B.4 is presented in Tables B.5, B.6, and B.7. The latter two tables show all statistically significant DGV:SV pairs from Table B.4 (weighted sample) and allow for a comparison of the bivariate relationship across unweighted and weighted samples.

Table B.4 shows 34 DGV:SV relationships are statistically significant ($p \leq .01$). The statistical significance of the DGV:SV pair identified as 1:13, for example, indicates

that a non-permanent caregiving grandparent, compared to a permanent caregiving grandparent, is more likely to have missing data on the *emotional well being* variable (Table B.7). However, interpreting the substantive significance of the 1:13 (DGV:SV) bivariate statistical relationship must consider that only 4.5% (unweighted sample) and 4.3% (weighted sample) of the data on the *emotional well being* variable are missing (Table B.1). Similarly, the 15 DGV:SV pairs that Table B.4 shows to be statistically significant ($p \leq .01$) across the DGV for *years in grandparent home* (DGV row 8), *child health* (DGV row 6), and *grandparent age* (DGV row 5) must consider that missing data account for only .26%, .11%, .34% of each weighted variable, respectively (Table B.1). Furthermore, the substantive significance of statistically significant DGV:SV bivariate relationships, when the DGV has $\leq$ 8% missing data, could be interpreted as of "marginal concern," per guidelines offered by Hair et al. (1998).

Imputation

Only one method of imputation was used in this study. The variable labeled "behavior" was imputed as described in Chapter IV. After the imputation, only 1 out of 465 cases had a missing value on the "behavior" variable.

Listwise Deletion, Sample Size Reduction, & Statistical Power

The multivariate regression model shown in Table 5.13 used a listwise deletion method. Because there is concern that the data are not missing completely at random (particularly on the dependent variable), the listwise deletion method may result in biased findings based on the multivariate analyses reported in Table 5.13, which limits generalizations from the study findings to the target population of grandparent caregivers.

The use of listwise deletion to address the missing data in this study resulted in a sample size reduction of 18.50%, i.e., from 465 to 379 grandparents available with complete data on all study variables. The statistical power of the multivariate regression model (Model 4 shown in Table 5.13) to detect a statistically significant R^2 of at least .130 (i.e., account for 13% of the variance in emotional well being) is estimated to be .99 [Lambda = 56.85, F(22,355) = 1.56].[39]

Missing Data Analysis Summary

Based on the weighted sample missing data analysis results, there is a concern that the emotional well being observations collected during the NSCAW may under-represent grandparents who 1) do not have a secondary caregiver in the home, 2) endorsed the Black non-Hispanic race category, and 3) are non-permanent caregivers, as the levels *within* each of these variables (i.e., secondary caregiver in the home, race/ethnicity, and grandparents status) were not equally likely ($p \leq .01$) to have missing data on the dependent variable (Tables B.4 & B.7). However, an evaluation of statistically significant DGV:SV relationships must also consider the low percentage of missing data on the study variables relevant to each DGV:SV pair.

[39] This statistic is based on a medium effect size estimate (f^2) of .15 (see Cohen, 1988).

MISSING DATA ANALYSIS II:

PERMANENT CAREGIVING GRANDPARENTS IN THE NSCAW CPS SAMPLE

Missing Data by Study Variable

The NSCAW CPS sample contains 146 grandparents who are each designated as a "permanent" caregiver to his/her grandchild.[40] Table B.8 shows that, with the exception of the child-level variable labeled "behavior," "secondary caregiver in the home" is the variable with the most (9) cases missing in the unweighted sample. The variables labeled "emotional well being," "grandparent physical health," "years in grandparent home," and "grandchild health" each have only 1 case missing valid data; and the percentage of cases missing data on each of these variables either remains the same (e.g., see "years in grandparent home" in Table B.8) or decreases when the statistical weights are applied. In addition, when the statistical weights are applied to the variable labeled "secondary caregiver in the home," only 4.5% of all the cases on this variable have missing data.

The percentage of cases on each of the AOD variables that have missing data increases from 2.7% to 10.2% when the statistical weights are applied to the unweighted sample. The "behavior" variable indicates that among the permanent caregiving grandparent sample, 20% of their grandchildren are less than 2 years of age. When the

[40] There are 465 grandparents in the NSCAW CPS sample who are the primary caregivers of her/his grandchild; 319 and 146 are designated by the NSCAW as "non-permanent" and "permanent" caregivers, respectively.

missing data on "behavior" are imputed, as described in Chapter IV, there are no missing data on this variable among permanent caregiving grandparents.

Randomness of Missing Data

Table B.9 shows a first-level overview of the presence ("X"), or absence ("-"), of bivariate relationships ($p \leq .05$) between each DGV:SV pair. The shaded rows indicate that a DGV variable could not be created because its SV did not have any missing data. For example, in Table B.9, no DGV variable could be created for race/ethnicity (DGV: row 10) because each grandparent had a valid value on this SV (no missing data). A non-shaded "X" denotes the DGV:SV relationship is statistically significant at the $p \leq .01$ level. A closer examination of each DGV:SV relationship denoted by an "X" in Table B.9 shown in Tables B.10 only for the weighted sample.

Table B.9 shows 43 DGV:SV relationships are statistically significant ($p \leq .01$). For example, Table B.10 indicates that missing data on grandparent emotional well being is significantly ($p < .001$) associated with higher levels of child physical health compared to grandparents that have a valid value on the emotional well being variable. However, only .5% (one-half of 1%) of all grandparent caregivers have missing data on emotional well being. As follows, the low percentage of missing data on grandparent emotional well being (.5%) must be considered when evaluating the following statistically significant DGV:SV pairs; 1:7, 1:8, 1:14; and 1:15. Furthermore, if 1) the two AOD variables not used in the multivariate analyses (3.2 & 3.3) and 2) all weighted DGVs that have less than 1.5% missing data (see Table B.8) are excluded from Table B.8, only 9 statistically significant DGV:SV relationships remain.

Imputation

Only one method of imputation was used in this study. The variable labeled "behavior" was imputed as described in Chapter IV. After the imputation, none of the 146 permanent grandparent caregivers had a missing value on the child-level "behavior" variable.

Listwise Deletion, Sample Size Reduction, & Statistical Power

The multivariate regression model shown in Tables 5.17 used a listwise deletion method. Because there is concern that the data are not missing completely at random, the listwise deletion method may result in biased findings based on the multivariate analyses reported in Table 5.17, which limits generalizing the findings of this study to the target population of "permanent" grandparent caregivers.

The use of listwise deletion to address the missing data in this study resulted in a sample size reduction of 13.70%, i.e., from 146 to 126 "permanent" caregiving grandparents available with complete data on all study variables. The statistical power of the multivariate regression model (Model 4 shown in Table 5.17) to detect a statistically significant R^2 of at least .130 (i.e., account for 13% of the variance in emotional well being) is estimated to be .63 [Lambda = 18.90, F(24,101) = 1.63]. However, when 12 statistically significant predictor variables (identified in Table 5.17) were used to construct the regression model shown in Table 5.18, the statistical power (post-hoc analysis) of this analysis (Table 5.18) to detect a statistically significant R^2 of at least

.130 (i.e., account for 13% of the variance in emotional well being) was estimated to be .80 [Lambda = 18.90, F(12,113) = 1.82].[41]

Missing Data Analysis Summary

The 5 statistically significant DGV:SV relationships associated with missing data on emotional well being (dependent study variable) should not be overlooked; however it must be emphasized that only .5% of the weighted cases are missing data on the dependent study variable. In addition, Allison maintains that a statistically significant relationship between missing/valid data on an independent variable and measures of the dependent variable (i.e., DGV:SV pair: 3.1:1) can introduce bias into the study findings when listwise deletion is used in a multivariate analysis. Of particular concern is that Table B.10 shows that missing data on the each of the AOD variables is associated with statistically significant higher levels of emotional well being compared to the group of "permanent caregiving" grandparents that have a valid value on the AOD independent variables. Thus, on balance, these findings present limitations in the ability to generalize from the study findings to the target population of "permanent" caregiving grandparents.

[41] This statistic is based on a medium effect size estimate (f^2) of .15 (see Cohen, 1988).

Table B.1: Missing Data Diagnostics:
Missing Data by Study Variable

Variable	Percent (%) of Cases Missing Data by Variable: Unweighted Sample (n = 465)	Weighted Sample
Grandparent Level Variables		
Dependent Variable		
Emotional Well Being	4.5	4.3
Independent Variables		
Perceived Neighborhood Risk	4.5	2.8
Alcohol Use	69.5	63.9
Drug Misuse	69.3[1]	60.7
Alcohol Use and/or Drug Misuse	69.3[1]	60.7
Control Variables		
Gender	0	0
Age	.7	.3
Race/Ethnicity	0	0
Marital/Partner Status	0	0
Education	0	0
Employment	0	0
Total Household Annual Income	6.0	7.3
Secondary Caregiver in the Home	6.7	5.6
Grandparent Status	0	0
Social Support	68.6	59.8
Grandparent Health	4.5	4.3
Grandchild Level Variables		
Age	0	0
Years in Grandparent Home	.2	.3
Health	.2	.1
Behavior	38.7[2]	21.2
Number of Children in the Household	0	0

1. In the unweighted sample, three grandparents had missing data on both drug misuse and alcohol use. Another grandparent reported drug misuse but had missing data on the survey item about alcohol use. Thus, 4 grandparents have missing data on alcohol use and 3 grandparents have missing data on drug misuse and alcohol and/or drug misuse.
2. Note: prior to imputation. With the exception of one case, this percentage refers to grandchildren < 2 years of age who were not eligible to be rated on the CBCL (see Table B.2).

Table B.2: Missing Data Diagnostics:
Reasons for Missing Data by Study Variable

Variable	Number of Cases Missing Data Per Variable	Frequency Associated with Reason for Missing Data	Unweighted Sample (n = 465) Percentage (%) of Missing Data by Reason [1]	Weighted Sample Percentage (%) of Missing Data by Reason
Grandparent Level Variables				
Emotional Well Being	21	13: Inadvertent Skips	61.9	72.6
		2: Partial Interviews	9.5	10.2
		5: "I don't know"	23.8	11.3
		1: Refused	4.8	5.9
Perceived Neighborhood Risk	21	21: "I don't know"	100%	100
All 3 forms of AOD Variable	323	319: Skip by Design	98.8	93.6
		4: Refused[2]	1.2	6.4
Gender	0	NA	NA	NA
Age	3	3: "I don't know"	100	100
Race/Ethnicity	0	NA	NA	NA
Marital/Partner Status	0	NA	NA	NA
Education	0	NA	NA	NA
Employment	0	NA	NA	NA
Total Household Annual Income	28	2: Missing	1.8	6.1
		18: Refused	64.3	72.3
		8: "I don't know"	28.6	21.6
Secondary Caregiver in Home	31	31: Non-Interview	100	100
Grandparent Status	0	NA	NA	NA
Social Support	319	319: Skip by Design	100	100
Grandparent Health	21	21: "I don't know"	100	100
Grandchild Level Variables				
Age	0	NA	NA	NA
Years in Grandparent Home	1	1: Non-Interview	100	100
Health	1	1: "I don't know"	100	100
Behavior	180	1: Missing	.6	1.3
		179: Child < 2 yrs	99.4	98.7
Number of Children in the Household	0	NA	NA	NA

1. These data are presented as a fraction of the total number of missing data per variable. For example, on the dependent variable *emotional well being*, 61.9% (unweighted sample) is derived from 13/21.
2. In the unweighted sample, three grandparents had missing data on both drug misuse and alcohol use. Another grandparent reported drug misuse but had missing data on the survey item about alcohol use. Thus, 4 grandparents have missing data on alcohol use and 3 grandparents have missing data (refused) on the drug misuse and alcohol and/or drug misuse variables.

Table B.3: Missing Data Diagnostics:
Overview of Statistically Significant DGV:SV Relationships
(Unweighted Sample)

DGV[1] Variable[2]	NSCAW Study Variables (SV)[2]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
1	*[3]	-	-	-	-	-	-	-	X[4]	-	X	-	-	-	-	-	-
2	-[5]	*	-	-	-	-	-	-	X	-	-	X	-	-	-	-	X
3	-	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	X	X	X	*	-	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	*	-	-	-	X	-	X	-	-	-	-	-	-
6	X	-	-	-	-	*	-	-	-	-	-	-	-	-	-	-	-
7	-	-	X	X	X	X	*	X	X	-	-	-	-	-	X	-	X
8	-	-	-	-	-	-	-	*	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	*	-	-	-	X	-	-	-	-
10[6]																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

1. DGV = Diagnostic Variable. All DGVs are dichotomous and created as follows: valid values =1 and missing values = 0.
2. DGV and Study Variables (SV) are represented using the following codes:
1: Emotional well being**, 2.** perceived neighborhood risk, **3.** GP age, **4.** annual family income **5.** GP health, **6.** child health, **7.** child behavior, **8.** years child in grandparent home, **9.** secondary caregiver in home, **10.** race/ethnicity, **11.** grandparent (GP) status, **12.** employment, **13.** number of children in household, **14.** level of GP education, **15.** child age, **16.** GP gender, **17.** marital status
3. Shaded cells containing a "*," which run diagonally from the upper left to the lower right of the table represent missing data comparisons of a DGV with the study variable from which it was derived, which is a non-diagnostic comparison.
4. Non-shaded "X" represents a statistically significant DGV:SV relationship of $p \leq .01$. A shaded "X" represents a DGV:SV relationship significant at $p \leq .05$.
5. "-" represents a DGV:SV relationship significant at $p > .05$ level.
6.Shaded rows across variables represents a DGV that could not be created because the study variable contains no missing data.

Table B.4: Missing Data Diagnostics:
Overview of Statistically Significant DGV:SV Relationships
(Weighted Sample)

DGV[1] Variable[2]	NSCAW Study Variables (SV)[2]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
1	*[3]	-	-	-	-	-	-	-	X[4]	X	X	-	-	-	-	-	-
2	-[5]	*	-	-	-	-	-	-	X	-	-	-	-	-	-	-	X
3	X	X	*	-	-	-	X	X	-	-	-	-	-	-	X	-	-
4	-	X	-	*	-	-	-	X	X	-	-	-	-	-	-	-	X
5	-	-	-	-	*	-	-	-	X	X	X	-	-	-	-	-	-
6	X	X	-	-	X	*	-	X	-	-	-	-	X	X	X	-	-
7	-	-	X	-	-	-	*	X	-	X	-	-	-	-	X	-	X
8	X	X	-	-	-	-	X	*	-	-	-	-	X	X	X	-	-
9	-	-	-	-	-	-	X	-	*	-	-	-	-	-	-	-	-
10[6]																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

1. DGV = Diagnostic Variable. All DGVs are dichotomous and created as follows: valid values =1 and missing values = 0.
2. DGV and Study Variables (SV) are represented using the following codes:
1: Emotional well being**, 2.** perceived neighborhood risk, **3.** GP age, **4.** annual family income **5.** GP health, **6.** child health, **7.** child behavior, **8.** years child in grandparent home, **9.** secondary caregiver in home, **10.** race/ethnicity, **11.** grandparent (GP) status, **12.** employment, **13.** number of children in household, **14.** level of GP education, **15.** child age, **16.** GP gender, **17.** marital status
3. Shaded cells containing a "*," which run diagonally from the upper left to the lower right of the table represent missing data comparisons of a DGV with the study variable from which it was derived, which is a non-diagnostic comparison.
4. Non-shaded "X" represents a statistically significant DGV:SV relationship of $p \leq .01$. A shaded "X" represents a DGV:SV relationship significant at $p \leq .05$.
5. "-" represents a DGV:SV relationship significant at $p > .05$ level.
6.Shaded rows across variables represents a DGV that could not be created because the study variable contains no missing data.

Table B.5:Missing Data Diagnostics: Tests of Independence: (Unweighted Sample)

Variable Pair[1] DGV:SV	TESTS of SIGNIFICANCE									
	T-TEST							CHI-SQUARE		
	Freq.[2] Miss on DGV	Freq.[3] Valid on DGV	M[4] SV by Miss	M[5] SV by Valid	SE	t	p	Percentage & Frequency Within Each Category of SV with Missing Data on DGV[6]	X^2	p
1: 9								No Sec. CG in HM: 6.1% (11) Sec. CG in HM: 2.4% (6)	4.0	.05
1: 11								Non-Perm CG: 6.3% (20) Perm CG: .7% (1)	7.2	.01
2: 9								No Sec. CG in HM: 7.8% (14) Sec. CG in HM: 1.2% (3)	12.3	.001
2: 12								Not Employed: 6.2% (14) Employed: 1.3% (3)	7.9	.01
2: 17								Not Married: 6.3% (13) Married/Partnered: 1.6% (4)	7.2	.01
4 : 1	23	421	55.6	50.7	2.1	2.4	.02			
4: 2	27	421	1.2	1.1	.04	3.9	<.001			
4 : 3								26-45: 3.3% (4) 46-55: 2.7% (5) >55: 11.3% (17)	13.4	.001
5 : 9								No Sec. CG in HM: 6.2% (11) Sec. CG in HM: 2.4% (6)	4.0	.05
5 : 11								Non-Perm CG: 6.3% (20) Perm CG: .7% (1)	7.2	.01
6 : 1	1	443	30	51.0	9.8	2.1	.03			
7 : 3								26-45: 61.8% (76) 46-55: 30.3% (57) >55: 29.1% (44)	39.1	.001
7 : 4								0-9,999: 31.6% (18) 10,000-19,999: 31.8% (41) 20,000-29,999: 36.2% (34) 30,000-39,999: 50.9% (27) 40,000 and greater: 49.0% (51)	12.0	.02
7 : 5	173	271	48.1	44.4	1.1	3.2	.001			
7 : 6	176	274	3.3	3.1	.1	2.2	.03			
7 : 8	179	285	.50	2.6	.24	8.6	<.001			
7 : 9								No Sec. CG in HM: 31.3% (56) Sec. CG in HM: 42.4% (108)	5.5	.02

Table B.5, Continued										
Variable Pair[1] **DGV:SV**	**TESTS of SIGNIFICANCE**									
	T-TEST							**CHI-SQUARE**		
	Freq.[2] Miss on DGV	Freq.[3] Valid on DGV	M[4] SV by Miss	M[5] SV by Valid	SE	t	p	Percentage & Frequency Within Each Category of SV with Missing Data on DGV[6]	X^2	p
7 : 15	179	286	.3	7.3	.3	25.1	<.001			
7 : 17								Not Married: 28.9% (60) Married/Partnered:46.3% (119)	14.8	.001
9 : 13	31	434	1.9	2.3	.24	1.9	.05			

1. DGV= Diagnostic Variable and SV= Study Variable. The DGV and SVs are represented using the following codes: **1:** Emotional well being**, 2.** perceived neighborhood risk, **3.** GP age, **4.** annual family income **5.** GP health, **6.** child health, **7.** child behavior, **8.** years child in grandparent home, **9.** secondary caregiver in home, **10.** race/ethnicity, **11.** grandparent (GP) status, **12.** employment, **13.** number of children in household, **14.** level of GP education, **15.** child age, **16.** GP gender, **17.** marital status.
   Therefore, the DGV:SV pair 1:2 refers to missing data on emotional well being by perceived neighborhood risk values.
2. The frequency (count) of missing values on the DGV.
3. The frequency (count) of valid (non-missing) values on the DGV.
4. The mean of the SV values that have missing values (0) on the DGV.
5. The mean of the SV values that have valid (non-missing) values (1) on the DGV.
6. For example, the interpretation of DGV:SV pair 1:9 is: 6.1% (11 grandparents) of grandparents with no secondary caregiver in the home have missing data on the variable emotional well being. 2.4% (6 grandparents) of grandparents with a secondary caregiver in the home and have missing data on emotional well being. Therefore, based on the X^2 test of independence, grandparents who report no secondary caregiver in the home are more likely to have missing data on the emotional well being variable compared to grandparents who report having a secondary caregiver in the home.

Table B.6: Missing Data Diagnostics: Tests of Independence (Weighted Sample)

DGV: SV	Sample							Weighted Sample				
	Freq **2** Missing on DGV	Freq **3** Valid on DGV	M **4** SV by Miss	M **5** SV by Val.	SE	t	p	M SV by Miss	M SV by Val.	SE	t	p
3 :1	1	443	45.0	50.9	9.9	.6	.55	45.0	52.9	1.0	7.5	<.001
3 :2	1	447	1	1.2	.2	.5	.58	1.0	1.3	.1	4.3	<.001
3 :7	1	285	1	1.6	.9	.7	.52	1.0	1.7	.1	5.3	<.001
3 :8	3	461	.3	1.8	1.6	.9	.35	.3	2.7	.4	6.6	<.001
3 :15	3	462	1.3	4.7	2.6	1.3	.20	1.9	6.2	1.6	2.7	.01
4 :2	27	421	1.2	1.1	.04	3.9	<.001	1.1	1.3	.1	3.3	<.001
4 : 8	28	436	1.8	.9	.3	2.8	.01	1.2	2.9	.5	3.4	<.001
6 : 1	1	443	30	51.0	9.8	2.1	.03	30.0	52.9	1.1	21.3	<.001
6 : 2	1	447	1.0	1.2	.4	.5	.58	1.0	1.3	.1	45	<.001
6 : 5	1	443	28.0	45.9	11.8	1.5	.13	28.0	43.6	1.8	8.7	<.001
6 : 8	1	463	.8	1.8	2.7	.4	.71	.8	2.7	.4	5.6	<.001
6 : 13	1	464	3.0	2.3	1.3	.5	.59	3.0	2.3	.1	5.7	<.001
6 : 14	1	464	3.0	1.9	.8	1.3	.19	3.0	1.8	.1	9.1	<.001
6 : 15	1	464	1.0	4.6	4.5	.8	.42	1.0	6.2	.5	11.0	<.001
7 : 8	179	285	.50	2.6	.24	8.6	<.001	.6	3.3	.4	6.1	<.001
7 : 15	179	286	.3	7.3	.3	25.1	<.001	.5	7.7	.5	14.1	<.001
8 : 1	1	443	56.0	51.0	9.9	.5	.61	56.0	52.8	1.1	3.0	.003
8 : 2	1	447	1.0	1.2	.4	.5	.59	1.0	1.3	.1	4.3	<.001
8 : 7	1	284	1.0	1.6	.05	.7	.48	1.0	1.7	.1	5.37	<.001
8 : 13	1	464	2.0	2.3	1.3	.2	.82	2.0	2.3	.1	2.4	.02
8 : 14	1	464	1.0	1.9	.8	1.1	.26	1.0	1.8	.1	6.1	<.001
8 : 15	1	464	3	4.6	4.5	.4	.72	3.0	6.2	.5	6.7	<.001
9 : 7	15	270	.9	1.7	.2	1.9	.07	1.1	1.7	.2	4.2	<.001

1. DGV= Diagnostic Variable and SV= Study Variable. The DIV and SVs are represented using the following codes: **1:** Emotional well being**, 2.** perceived neighborhood risk, **3.** GP age, **4.** annual family income **5.** GP health, **6.** child health, **7.** child behavior, **8.** years child in grandparent home, **9.** secondary caregiver in home, **10.** race/ethnicity, **11.** grandparent (GP) status, **12.** employment, **13.** number of children in household, **14.** level of GP education, **15.** child age, **16.** GP gender, **17.** marital status. Therefore, the DGV:SV pair 1:2 refers to missing data on emotional well being by perceived neighborhood risk values.
2. The frequency (count) of missing values on the DGV.
3. The frequency (count) of valid (non-missing) values on the DGV.
4. The mean of the SV values that have missing values (0) on the DGV.
1. The mean of the SV values that have valid (non-missing) values (1) on the DGV.

Table B.7: Missing Data Diagnostics: Tests of Independence: (Weighted Sample)

CHI-SQUARE TESTS OF INDEPENDENCE						
Var. Pair DGV:SV	**Sample**			**Population**		
	Percentage & Frequency Within Each Category of SV with Missing Data on DGV[6]	**X^2**	**p**	**Percentage & Frequency Within Each Category of SV with Missing Data on DGV[6]**	**X^2**	**p**
1 : 9	No Sec. CG in HM: 6.1% (11) Sec. CG in HM: 2.4% (6)	4.0	.05	No Sec. CG in HM: 7.5% Sec. CG in HM: .9%	11.2	.001
1 : 10	Black Non-Hispanic: 7.5% (12) White Non-Hispanic: 2.3%(5) Other Non-Hispanic: 3.3%(1) Hispanic: 5.4%(3)	5.9	.11	Black Non-Hispanic: 10.6% White Non-Hispanic: 1.1% Other Non-Hispanic: 1.2% Hispanic: 3.3%	6.7	.001
1 : 11	Non-Perm CG: 6.3% (20) Perm CG: .7% (1)	7.2	.01	Non-Perm CG: 6.9% Perm CG:.5%	10.6	.001
2: 9	No Sec. CG in HM: 7.8% (14) Sec. CG in HM: 1.2% (3)	12.3	.001	No Sec. CG in HM: 4.2% Sec. CG in HM: .7%	6.5	.01
2: 17	Not Married: 6.3% (13) Married/Partnered: 1.6% (4)	7.2	.01	Not Married: 3.5% Married/Partnered: .5%	10.3	.001
4 : 9	No Sec. CG in HM: 3.9%(7) Sec. CG in HM: 6.7%(17)	1.5	.22	No Sec. CG in HM: 3.1 % Sec. CG in HM: 10.6%	4.7	.03
4 : 17	Not Married: 3.8(8)% Married/Partnered: 7.8(20)%	3.1	.08	Not Married: 3.1% Married/Partnered: 12.9%	6.6	.01
5 : 9	No Sec. CG in HM: 6.2% (11) Sec. CG in HM: 2.4% (6)	4.0	.05	No Sec. CG in HM: 7.5% Sec. CG in HM: .9%	11.2	.001
5 : 10	Black Non-Hispanic: 7.5%(12) White Non-Hispanic: 2.3%(5) Other Non-Hispanic: 3.3%(1) Hispanic: 5.4%(3)	5.9	.12	Black Non-Hispanic: 10.6% White Non-Hispanic: 1.1% Other Non-Hispanic: 1.2% Hispanic: 3.3%	6.7	.001
5 : 11	Non-Perm CG: 6.3% (20) Perm CG: .7% (1)	7.2	.01	Non-Perm CG: 6.9% Perm CG: .5%	10.6	.001
7 : 3	26-45: 61.8% (76) 46-55: 30.3% (57) >55: 29.1% (44)	39.1	.001	26-45: 50.7% 46-55: 14.9% >55: 13.5%	11.2	<.001
7 : 10	Black Non-Hispanic:37.9%(61) White Non-Hispanic:38.5%(84) Other Non-Hispanic 30.0%(9) Hispanic:44.6%(25)	1.8	.61	Black Non-Hispanic: 14.1% White Non-Hispanic: 20.4% Other Non-Hispanic: 21.2% Hispanic: 50.2%	4.0	.01
7 : 17	Not Married: 28.9% (60) Married/Partnered:46.3% (119)	14.8	.001	Not Married: 13.0% Married/Partnered: 31.7%	7.7	.01

1. DGV= Diagnostic Variable and SV= Study Variable. The DGV and SVs are represented using the following codes: **1:** Emotional well being**, 2.** perceived neighborhood risk, **3.** GP age, **4.** annual family income **5.** GP health, **6.** child health, **7.** child behavior, **8.** years child in grandparent home, **9.** secondary caregiver in home, **10.** race/ethnicity, **11.** grandparent (GP) status, **12.** employment, **13.** number of children in household, **14.** level of GP education, **15.** child age, **16.** GP gender, **17.** marital status.
   Therefore, the DGV:SV pair 1:3.1 refers to missing data on emotional well being by drug misuse values.
2. The frequency (count) of missing values on the DGV.
3. The frequency (count) of valid (non-missing) values on the DGV.
4. The mean of the SV values that have missing values (0) on the DGV.
5. The mean of the SV values that have valid (non-missing) values (1) on the DGV.
6. For example, the interpretation of DGV:SV pair 1:9 is: 6.1% (11 grandparents) of grandparents with no secondary caregiver in the home have missing data on the variable emotional well being. 2.4% (6 grandparents) of grandparents with a secondary caregiver in the home and have missing data on emotional well being. Therefore, based on X^2 test of independence, grandparents who report no secondary caregiver in the home are more likely to have missing data on the emotional well being variable compared to grandparents who report having a secondary caregiver in the home.

Table B.8: Missing Data Diagnostics:Missing Data by Study Variable
Permanent Caregiving Grandparents

Variable	Percent (%) of Cases Missing Data by Variable	
	Unweighted Sample n = 146	Weighted Sample
Grandparent Level Variables		
Dependent Variable		
Emotional Well Being	.7 (1)[1]	.5
Independent Variables		
Perceived Neighborhood Risk	2.7 (4)	1.4
Alcohol Use	2.7 (4)	10.2
Drug Misuse	2.1[2] (3)	2.3
Alcohol Use and/or Drug Misuse	2.1[2] (3)	2.3
Control Variables		
Gender	0	0
Age	0	0
Race/Ethnicity	0	0
Marital/Partner Status	0	0
Education	0	0
Employment	0	0
Total Household Annual Income	3.4 (5)	4.6
Secondary Caregiver in the Home	6.2 (9)	4.5
Social Support	0	0
Grandparent Physical Health	.7 (1)	.5
Grandchild Level Variables		
Age	0	0
Years in Grandparent Home	.7 (1)	.7
Health	.7 (1)	.3
Behavior	37.7[3] (55)	20.0
Number of Children in the Household	0	0

1. Number of cases with missing data on unweighted variable.
2. In the unweighted sample, three grandparents had missing data on both drug misuse and alcohol use. Another grandparent reported drug misuse but had missing data on the survey item about alcohol use. Thus, 4 grandparents have missing data on alcohol use and 3 grandparents have missing data (refused) on the drug misuse and alcohol and/or drug misuse variables.
3. Note: prior to imputation. This percentage refers to grandchildren < 2 years of age who were not eligible to be rated on the CBCL.

Table B.9: Missing Data Diagnostics:
Overview of Statistically Significant DGV:SV Relationships: Permanent Caregiving Grandparents
(Weighted Sample)

DGV Variable	NSCAW Study Variables (SV)[2]																			
	1	2	3.1	3.2	3.3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	*	-	-	-	-	-	-	**X**	**X**	**X**	-	-	-	-	-	**X**	**X**	-	-	-
2	-	*	-	-	-	-	-	-	**X**	-	-	**X**	-	-	-	-	-	-	-	-
3.1	**X**	**X**	*	-	-	-	-	-	**X**	-	-	-	-	-	**X**	**X**	-	-	-	-
3.2	**X**	**X**	-	*	-	-	-	-	**X**	-	-	-	-	-	**X**	**X**	-	-	-	-
3.3	**X**	-	**X**	-	*	-	**X**	-	-	-	**X**	-	-	-	-	**X**	-	-	-	-
4	**X**	**X**	-	**X**	-	*	-	-	-	**X**	-	-	-	-	-	-	**X**	-	**X**	-
5	-	-	-	-	-	-	*	**X**	**X**	**X**	-	-	-	-	-	**X**	**X**	-	-	-
6	**X**	**X**	-	-	-	-	**X**	*	-	**X**	-	-	-	-	**X**	**X**	**X**	-	-	-
7	-	-	-	-	**X**	-	-	-	*	**X**	-	-	**X**	-	-	-	**X**	-	**X**	**X**
8	**X**	**X**	-	-	-	-	-	**X**	**X**	*	-	-	-	-	-	**X**	**X**	-	-	-
9	-	-	-	-	-	-	-	**X**	**X**	-	*	**X**	-	-	**X**	-	-	-	-	-
10																				
11																				
12																				
13																				
14																				
15																				
16																				
17																				
18																				

1. DGV = Diagnostic Variable. All DGVs are dichotomous and created as follows: valid values =1 and missing values = 0.
2. DGV and Study Variables (SV) are represented using the following codes:
1: Emotional well being**, 2.** perceived neighborhood risk, **3.1** drug misuse, **3.2** alcohol and/or drug misuse, **3.3** alcohol use., **4.** annual family income **5.** GP health, **6.** child health, **7.** child behavior, **8.** years child in grandparent home, **9.** secondary caregiver in home, **10.** race/ethnicity, **11.** social support, **12.** employment, **13.** number of children in household, **14.** level of GP education, **15.** child age, **16.** GP gender, **17.** marital status, **18.** GP age
3. Shaded cells containing a "*," which run diagonally from the upper left to the lower right of the table represent missing data comparisons of a DGV with the study variable from which it was derived, which is a non-diagnostic comparison.
4. Non-shaded "X" represents a statistically significant DGV:SV relationship of $p \leq .01$. A shaded "X" represents a DGV:SV relationship significant at $p \leq .05$.
5. "-" represents a DGV:SV relationship significant at $p > .05$ level.
6.Shaded rows across variables represents a DGV that could not be created because the study variable contains no missing data.

Table B.10: Missing Data Diagnostics: Tests of Independence: Permanent Caregiving Grandparents (Weighted Sample)

Variable Pair[1] DGV:SV	TESTS of SIGNIFICANCE							
	T-TEST					CHI-SQUARE		
	M[4] SV by Miss	M[5] SV by Valid	SE	t	p	Percentage Within Each Category of SV with Missing Data on DGV[6]	X^2	p
1:6	5.00	3.99	.13	7.65	<.001			
1:7	3.00	1.71	.17	7.68	<.001			
1:8	13.00	3.73	.64	14.59	<.001			
1:14	1.00	1.78	.11	7.22	<.001			
1:15	13.00	6.65	.78	8.14	<.001			
2:7	2.80	1.70	.31	3.49	.001			
2:10						Black Non-Hispanic: .46% White Non-Hispanic: .33% Other Non-Hispanic: 25.87% Hispanic: 4.57%	16.99	<.001
3.1:1	63.10	51.40	2.60	4.49	<.001			
3.1:2	1.00	1.37	.10	3.85	<.001			
3.1:7	3.00	1.70	.17	7.74	<.001			
3.1:13	1.20	2.09	.29	3.09	.002			
3.1:14	1.00	1.79	.12	6.88	<.001			
3.2:1	63.10	51.40	2.60	4.49	<.001			
3.2:2	1.00	1.37	.10	3.85	<.001			
3.2:7	3.00	1.70	.17	7.74	<.001			
3.2:13	1.20	2.09	.29	3.09	.002			
3.2:14	1.00	1.79	.12	6.88	<.001			
3.3:1	59.79	50.74	2.26	4.83	<.001			
3.3:3.1						No Drug Misuse: 0% Drug Misuse: 41.72%	52.41	.004
3.3:5	18.55	43.72	5.93	4.25	<.001			
3.3:9						No Sec. CG in HM: 18.41% Sec. CG in HM: 2.15%	9.52	.04
3.3:14	1.00	1.86	.10	8.96	<.001			
4:1	57.67	51.33	2.99	2.13	.04			
4:2	1.05	1.38	.11	3.06	.003			
4:3.2						No AOD: 1.39% Uses AOD: 8.64%	4.59	.05
4:8	1.05	3.90	.89	3.2	.002			
4:15	3.18	6.85	1.82	2.01	.05			
4:17						Not Married: 0% Married/Partnered: 11.93%	11.21	.01
5:6	5.00	3.99	.13	7.65	<.001			
5:7	3.00	1.71	.17	7.68	<.001			
5:8	13.00	3.73	.64	14.59	<.001			
5:14	1.00	1.78	.11	7.22	<.001			
5:15	13.00	6.65	.78	8.14	<.001			
6:1	30.00	51.68	1.93	11.22	<.001			
6:2	1.00	1.37	.10	3.85	<.001			
6:5	28.00	41.30	3.13	4.25	<.001			

Table B.10, Continued

Variable Pair[1] DGV:SV	TESTS of SIGNIFICANCE							
	T-TEST					CHI-SQUARE		
	M[4] SV by Miss	M[5] SV by Valid	SE	t	p	Percentage Within Each Category of SV with Missing Data on DGV[6]	X^2	p
6:8	.75	3.76	.64	4.76	<.001			
6:13	3.00	2.06	.16	5.71	<.001			
6:14	3.00	1.77	.11	11.39	<.001			
6:15	1.00	6.70	.78	7.31	<.001			
7:3.3						None/Never Drinks Alcohol: 15.33% Drinks Alcohol: 51.25%	14.84	.01
7:8	.72	4.53	.76	5.04	<.001			
7:11						Dissatisfied: 68.33% Satisfied: 18.02%	8.54	.02
7:15	.68	8.18	.72	1.42	<.001			
7:17						Not Married: 11.11% Married/Partnered: 33.99%	11.34	.05
7:18						26-45: 47.63% 46-55: 13.55% >55: 8.48%	22.21	.003
8:1	56.00	51.59	1.94	2.27	.03			
8:2	1.00	1.37	.10	3.85	<.001			
8:6	3.00	4.00	.13	7.58	<.001			
8:7	1.00	1.73	.17	4.35	<.001			
8:14	1.00	1.78	.11	7.22	<.001			
8:15	3.00	6.71	.78	4.76	<.001			
9:6	3.42	4.02	.30	2.00	.05			
9:7	1.13	1.75	.24	2.58	.01			
9:10						Black Non-Hispanic: .39% White Non-Hispanic: 4.79% Other Non-Hispanic: 7.46% Hispanic: 20.37%	11.10	.02
9:13	1.26	2.10	.28	3.01	.002			

1. DGV= Diagnostic Variable and SV= Study Variable. The DGV and SVs are represented using the following codes: **1:** Emotional well being**, 2.** perceived neighborhood risk, **3.** GP age, **4.** annual family income **5.** GP health, **6.** child health, **7.** child behavior, **8.** years child in grandparent home, **9.** secondary caregiver in home, **10.** race/ethnicity, **11.** grandparent (GP) status, **12.** employment, **13.** number of children in household, **14.** level of GP education, **15.** child age, **16.** GP gender, **17.** marital status.
   Therefore, the DGV:SV pair 1:2 refers to missing data on emotional well being by perceived neighborhood risk values.
2. The frequency (count) of missing values on the DGV.
3. The frequency (count) of valid (non-missing) values on the DGV.
4. The mean of the SV values that have missing values (0) on the DGV.
5. The mean of the SV values that have valid (non-missing) values (1) on the DGV.

APPENDIX C

REGRESSION DIAGNOSTICS

REGRESSION DIAGNOSTICS

This Appendix section shows the results of a series of diagnostics that were conducted to evaluate the Ordinary Least Squares (OLS) assumptions of the multivariate linear regression models constructed in this study. The OLS assumptions of the linear regression model are that 1) the functional form of the multivariate regression model is linear, 2) the errors have a constant variance across observations (homoscedasticity assumption), and 3) the errors are normally distributed (Long & Trivedi, 1992, p. 166 – 167). The diagnostic procedures used to evaluate OLS assumptions are informed by Long and Trivedi (1992), Fox (1991), Hamilton (1992), and StataCorp (Vol. III, 2003b). On balance, the results of these diagnostic analyses highlight limitations of the regression models; although do not preclude the use of the multivariate linear regression models to evaluate the study data. This Appendix concludes with a brief discussion about the use of a logit model to conduct the multivariate analyses in this study.

Special Issues Concerning the Use of Specification Tests: Unweighted and Weighted Data

Formal statistical tests, referred to as "specification tests," can be used to evaluate OLS assumptions of a multivariate linear regression model and are (Long & Trivedi, 1992). However, according to Dr. Poi (StataCorp statistician), when data are weighted as in this study (see Chapter IV), the use of specification tests to evaluate OLS assumptions of the linear regression model is not possible because " how those statistics behave with the weighted data is an open question" (personal communication, Dr. Brian Poi, 5-21-2004). The sampling distributions based on the weighted data are not known and Stata

v8.0 (StataCorp, 2003a) regression diagnostic commands were not designed to evaluate OLS assumptions of regression models after survey estimators (StataCorp, 2003c) are used.

Dr. Poi recommended that the OLS assumptions of the "weighted" multivariate linear regression models be evaluated via a visual analysis of residual plots constructed by this investigator. Hamilton (1992) also maintains that a visual examination of a plot of residuals versus predicted Y values for a given linear regression model is a reasonable approach to an evaluation of OLS assumptions. Therefore, a series of visual analyses of residual plots (i.e., residuals versus predicted (Y) values of dependent variable) were used to evaluate OLS assumptions for the regression models constructed with weighted NSCAW data used in this study. Residual plots will be shown for multivariate linear regression models constructed from both unweighted and weighted data.

Initial Univariate Diagnostics

To begin the diagnostic procedures, a series of univariate analyses were conducted on all of the available unweighted data on each study variable. The statistical properties that characterize the data on each study variable (unweighted and weighted) were examined and many of these characteristics are reported in Table 5.1. The distributions of 1) data on each variable and 2) errors for the regression models used in this study were examined as a means of evaluating univariate and multivariate normality. Hair et al. (1998) maintain that evidence of univariate normal distributions cannot be generalized to an assumption of multivariate normality.

An examination of each unweighted metric-level variable showed evidence of non-normal distributions. The results of an application of statistical transformations (logarithm, square, inverse, and so on) to the metric variables did not result in statistically significant changes. While formal statistical tests to evaluate the statistical significance of the normality of the distributions across the weighted study variables could not be conducted, visual examinations of the "weighted" univariate distributions were consistent with those observed among the unweighted variables. The distribution of the dependent variable showed a negative skew when data were unweighted and weighted. However, according to Berry (1993), the detection of univariate non-normal distributions among study variables should not reflexively preclude the use of OLS regression models and further regression diagnostics should be conducted to evaluate multivariate normality.

The regression diagnostics continued via a multivariate residual analysis approach whereby a linear regression model was fitted using the study data to permit 1) the detection of outliers and potential influential cases and 2) an overall examination of error distributions. In the following section (Section I), the results of regression diagnostics are presented using the sample of "permanent" and "non-permanent" caregiving grandparents. In the second section (Section II), the results of a regression diagnostics are presented using the sample of "permanent" caregiving grandparents.

SECTION I:

REGRESSION DIAGNOSITICS USING SAMPLE OF PERMANENT & NON-PERMANENT CAREGIVING GRANDPARENTS

A series of specification tests were conducted on the multivariate linear regression models constructed in this study using NSCAW unweighted data. It is emphasized that the outcomes of the specification tests that used the unweighted data have limited meaning for evaluating OLS assumptions of the multivariate linear regression models constructed in this study, i.e., the regression models constructed based on the weighted survey data. However, the specification tests using unweighted data are presented to 1) illustrate key regression diagnostic procedures and 2) allow for a comparison between residual plots constructed with unweighted and weighted data.

Specification tests were conducted on the unweighted regression model shown in Table 5.12 (Model 3). Ramsey's RESET Test (Long & Trivedi, 1992) for omitted values and functional form provides no evidence of a statistically significant pattern among the residuals [$F(3, 353)=1.59$, $p=.191$] and supports the contention that the functional form of the regression model is linear. According to Long and Trivedi (1992), if there is evidence that the functional form of the regression model is linear, tests of homoscedasticity, skewness, and kurtosis of the errors should be performed.

Table C.1 shows the results of a Cameron and Trivedi's Decomposition of White's Information Matrix (commonly referred to as the IM test) test and presents 1) separate decomposed tests to examine OLS assumptions and 2) an overall statistical test that can be used as an index to evaluate OLS assumptions (StatCorp, Vol III, 2003b).

Table C.1 shows evidence of a problem with skewness among the residuals, which is a symptom of the non-normal frequency distribution pattern detected in prior univariate analyses. The Cameron & Trivedi Decomposition Test provides an overall measure of whether the regression model meets OLS assumptions and the statistical significance of the IM Test ($X^2 = 277.01$, $p = .018$) suggests a problem, as there is evidence of a non-normal distribution of errors.

According to Long and Trivedi (1992), "if the errors are not normal, the OLS estimator of the β (regression coefficient) is still a best linear unbiased estimator and the usual test of significance has asymptotic justification. However, the OLS estimator is no longer the maximum likelihood estimator and the small sample behavior of significance tests is uncertain" (p. 167) [see Berry, 1993 for similar discussion on violations of OLS assumption of normal distribution of errors of a linear regression model]. Although Hamilton (1992) maintains that the rationale of evaluating the significance of F and t-tests may be in question when the OLS assumption of a normal distribution of errors is violated particularly for small sample sizes (i.e., less than 30).

Table C.1
Cameron & Trivedi's Decomposition Test: (n = 379)

Source	Chi Square	df	p
Heteroskedasticity	225.19	207	.184
Skewness	48.49	22	.001
Kurtosis	2.33	1	.127
Total	277.01	230	.018

Studentized residuals, Cook's Distance, Welsch Distance, and DFITS Distance indices (StataCorp, 2003b) for each case entered into the regression model was examined to identify "outlier" and potential "influential" cases that could have a disproportionate influence on the predicted values that are used to estimate the regression line. The

number of cases that were flagged for further examination varied based on the diagnostic method conducted. Each case was examined and the findings reveal no apparent coding errors or problems that could be attributed to incorrect data entry. An apparent primary reason as to why the observations were identified (i.e., flagged) via the diagnostic procedures is that these cases reflected grandparents who had high levels of emotional well being and high perceived neighborhood risk scores or visa-versa (i.e., did not fit the model).

In Fox's (1991) treatment of regression diagnostics, he places particular emphasis on the point that there is considerable reasoned debate as to whether cases should be removed from statistical analyses. Fox maintains that case deletion proceed with caution and should be grounded in the aims of the study.

A salient pattern of two cases repeatedly emerged as potentially influential and required further examination as they could have a disproportionate influence on the predicted values that are used to estimate the regression line and pattern (or lack thereof) of residuals (Fox, 1991). After the two identified cases were removed and OLS assumptions were reevaluated, the Ramsey's RESET Test once again provided no evidence of statistically significant patterns among the residuals [$F(3, 351)=1.61$, $p=.188$] that indicates that the function form of the regression model is linear. The removal of the two cases impacted the Cameron and Trivedi Decomposition Test ($X^2 = 254.52$, $p = .119$), although the concern remains that the errors are not normally distributed (Table C.2). However, the removal of the two referenced cases only minimally increases the

unweighted regression model's (Table 5.12, Model 3) adjusted R^2 from .123 (12.3%) to .138 (13.8%).

Table C.2
Cameron & Trivedi's Decomposition Test: (n = 377)

Source	Chi Square	df	p
Heteroskedasticity	207.24	206	.463
Skewness	45.76	22	.002
Kurtosis	1.52	1	.217
Total	254.52	229	.119

Collinearity among the independent and control variables (n=379) were examined and the variable with the highest variance inflation factor (VIF) value was marital status (1.86), which is well below the threshold VIF value of 10 indicating a potential problem (Fox, 1991). Using the sample size of 377 (after the two referenced cases were removed), no evidence of a collinearity problem was evident as the variable with the highest variance inflation factor (VIF) value was again marital status (1.87).

Figure C.1 is a plot of the residuals versus the predicted Y values (grandparent emotional well being; MCS scores) for the regression model shown in Table 5.12 (Model 3, n = 379). Hamilton (1992) was consulted as an aid to visually interpret the residual plots shown in Figure C.1. A visual examination of Figure C.1 does not appear to show a discernable pattern among the residuals that would clearly preclude the use of a linear regression model; although the concerns highlighted based on the specification test results are indicated. On balance, the results of these diagnostic data suggest that the sample size of 379 would be retained if the primary source of data remained unweighted.

Figure C.1
Residuals versus Predicted MCS Scores: Regression Diagnostics Using Data Derived From Multivariate Regression Model 3 Shown in Table 5.12: (Unweighted, n = 379)

An Evaluation of the Weighted Regression Model

Formal statistical specification tests to evaluate the regression assumptions of the linear regression models using the survey estimators (weighted data) cannot be computed using Stata v8.0 for reasons referenced above, although the recommendations offered by Dr. Poi were followed. Figure C.2 shows a plot of the residuals versus the predicted Y values (grandparent emotional well being; MCS scores) for the regression model shown in Table 5.13 (Model 4) using the NSCAW weighted data (n = 379).

Hamilton (1992) was consulted as an aid to visually interpret the residual plots shown in Figure C.2. A visual examination of the residuals in Figure C.2 does not show a clear problem indicating that the functional form of the regression model is not linear (i.e., curvilinear, for example) which would be the most serious violation of the OLS assumptions (StataCorp, Vol. III, 2003b) and would render further analysis of limited

value. However, there is a concern about heteroscedasticity (i.e., unequal variances in emotional well being across the range of values on the independent variables) and skewness is indicated.

According to Berry (1985), while the regression estimates will not be substantively impacted by heteroscedasticity, the validity of the tests of statistical significance are affected. However, based on a review of studies conducted by Bohrnstedt and Carter (1971), Berry concluded, "unless heteroscedasticity is marked, the significance tests are virtually unaffected, and thus OLS estimation and the associated formula for calculating standard errors can be used without concern of serious distortion" (p. 78). As for the assumption that the errors are normally distributed, Hamilton (1992) maintains that the rationale of evaluating the significance of F and t-tests may be in question particularly for small sample sizes (i.e., less than 30).

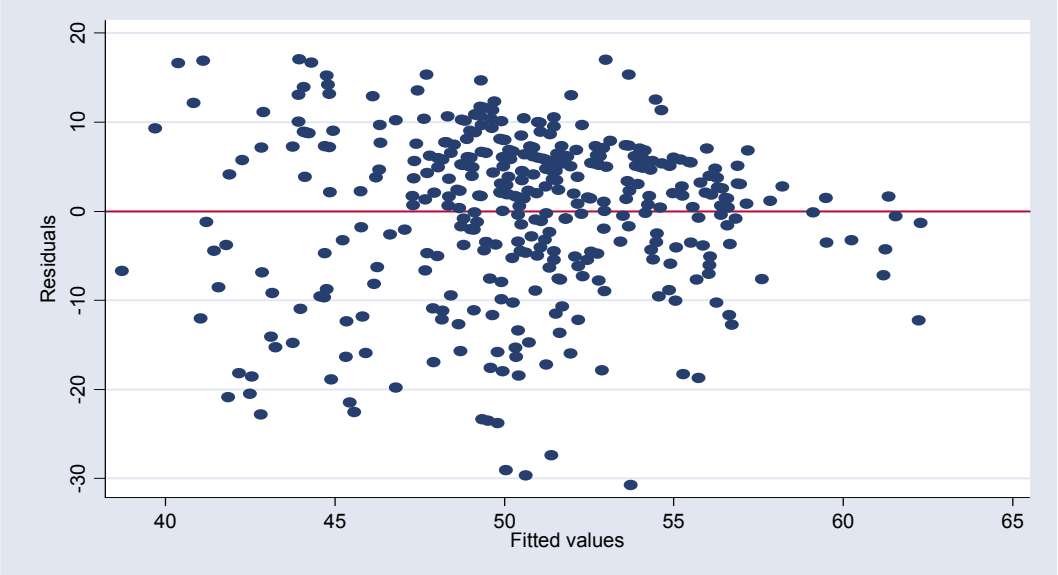
To examine potential significant collinearity problems, each predictor variable was regressed on the remaining study variables (with the exception of emotional well being). With one exception, there was no indication that multicollinearity problems would be a significant problem in the multivariate analyses using the weighted data. The exception involved the use of "caregiver status" when the interaction variable (perceived neighborhood risk x caregiver status) was entered into the regression model.

Guided by the visual inspection of the plots in Figure C.2, several cases that appeared to be outliers and/or potential influential cases were removed from the regression model and a subsequent multivariate linear regression model was recomputed and evaluated. Slight improvements in the overall regression model's R^2 resulted,

although changes in the statistical significance of the independent variable regression coefficients were not observed.

Figure C.2 does not clearly preclude using a multivariate linear regression method of analysis to evaluate the data in this study. The regression model with a sample size of 379 will be retained. The observations made concerning the visual analysis of the residual plots shown in Figure C.2 will be addressed as potential limitations of the statistical model.

Figure C.2
Residuals versus Predicted MCS Scores: Regression Diagnostics Using Data Derived From Multivariate Regression Model 4 Shown in Table 5.13 (Weighted, n = 379)



SECTION II:

DIAGNOSITICS ON EXPLORATORY MULTIVARIATE LINEAR REGRESSION MODELS

This section presents regression diagnostics for the exploratory multivariate linear regression models shown in Chapter 5. In each of the following models, only

"permanent" grandparent caregivers were surveyed about their alcohol and drug consumption and accounts for the apparent marked reduction in the sample sizes. In this section only the residual plots are evaluated for the weighted exploratory regression models because diagnostic procedures, to include the statistical significance of specification tests, based on the unweighted multivariate regression model (Table 5.16) cannot be generalized to an evaluation of the OLS assumptions of the regression models that used weighted NSCAW data (Table 5.17). The residual plots for the unweighted regression models are, however, shown for comparison.

Figure C.3 and Figure C.4 shows a plot of residuals versus the predicted Y values (grandparent emotional well being; MCS scores) for the weighted multivariate linear regression models shown in Table 5.17 (Model 4) and Table 5.18, respectively. Figure C.4 is based on the "parsimonious regression model" shown in Table 5.18 and is comprised of only statistically significant variables identified in Table 5.17 (Model 4). Figure C.5 shows the unweighted multivariate linear regression model shown in Table 5.16 (Model 4). Hamilton (1992) was used as a guide to interpret each of the following residual plots.

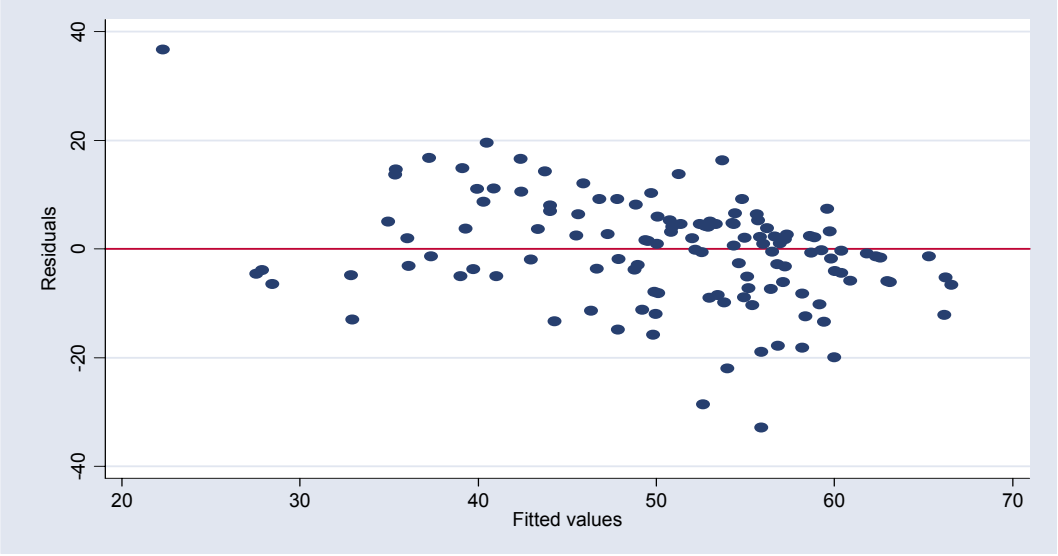
An Examination of the Regression Diagnostics Based on the Exploratory Multivariate Linear Regression Models Shown in Table 5.17 (Model 4) & Table 5.18

An examination of Figure C.3 and Figure C.4 shows that relatively few residuals are greater than 2 standard deviations from the predicted value. More importantly, Figure C.3 and Figure C.4 does not show a clear indication of a curvilinear pattern or any other type of pattern that is cause to reject the contention that the functional of the multivariate

regression model is linear. Figure C.3 shows evidence of a skew among the residuals that indicates a non-normal distribution of the errors although this observation is present to a lesser degree in Figure C.4. In addition, the non-constant variance across residuals is apparent at the extremes of the fitted values but to a lesser degree in Figure C.4 relative to Figure C.3. On balance, the residual plot shown in Figure C.4 (parsimonious model) is determined to be an improvement over Figure C.3.[42]

In Figure C.4 outliers are apparent. The removal of each outlier (> 2 SD) from the regression model increases the model R^2 and does not result in a change in the statistical significance of any regression coefficient in the model. It is believed that none of the apparent outlier cases exert a substantial influence on the regression line and the increase in R^2 by removing the cases with residuals >2 is 3.2%. Thus, all 126 cases were retained in the model.

Figure C.3
Residuals versus Predicted MCS Scores: Regression Diagnostics Using Data Derived From Multivariate Regression Model 4 Shown in Table 5.17 (Weighted, n = 126)



[42] The implications of non-normal errors and heteroscedasticity were addressed in Section I.

Figure C.4
Residuals versus Predicted MCS Scores: Regression Diagnostics Using Data Derived From the Multivariate Regression "Parsimonious" Model Shown in Table 5.18 (Weighted, n = 126)

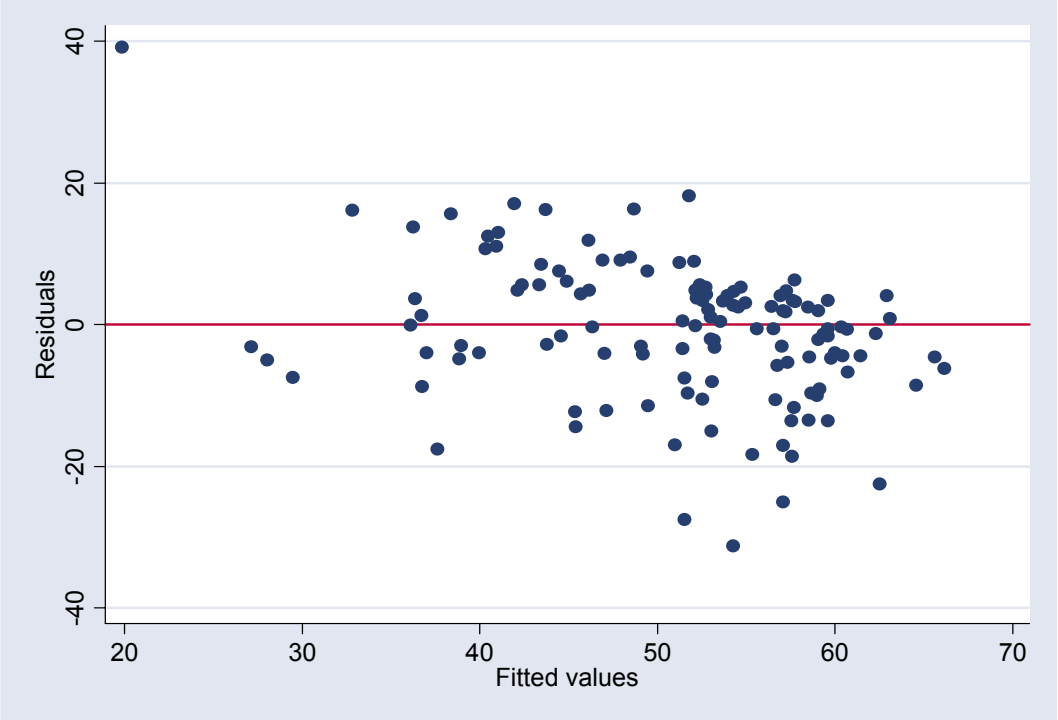
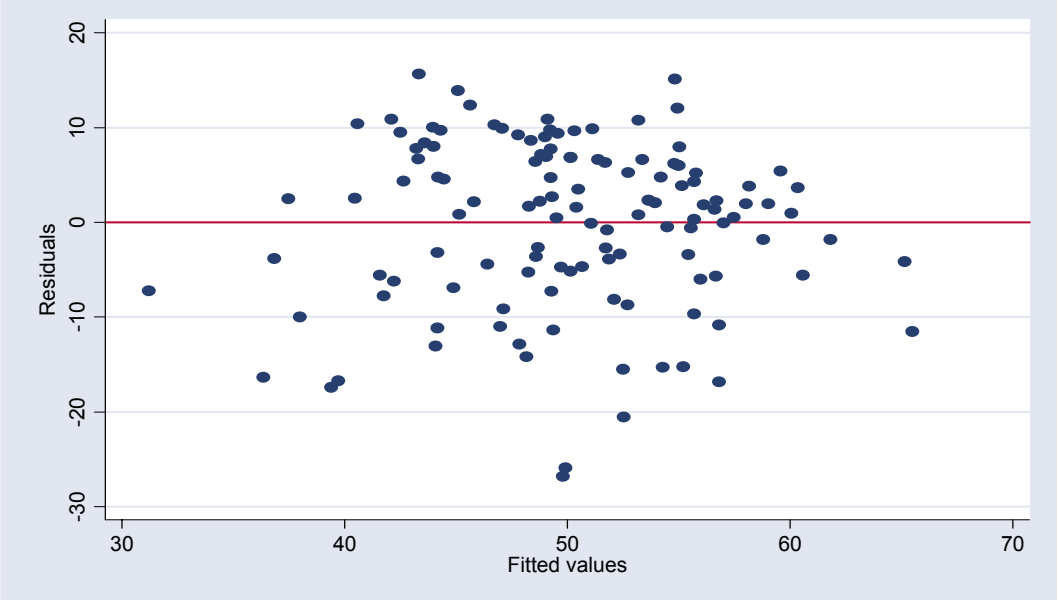


Figure C.5
Residuals versus Predicted MCS Scores: Regression Diagnostics Using Data Derived From Multivariate Regression Model 4 Shown in Table 5.16 (Unweighted, n = 126)



CONSIDERATION OF LOGIT REGRESSION MODELS

Logit ordinal and multinomial regression methods were carefully considered as a means of analyzing the data to answer several of the research questions and the use of a "generalized" linear model as an analytic approach in this study is not without merit. In considering the most appropriate analytic strategy for this study, one important issue that emerged was the measurement properties of the dependent variable appropriate for the aims of this research. For example, if a logit model was used, it would be difficult to determine what criteria would inform meaningful and valid "cut-off" points to create categories of emotional well being as an outcome variable. A metric-level emotional well being variable was of theoretical relevance to this study and an argument against creating categories of the dependent variable was discussed in Chapter IV.

Nonetheless, it would be possible to construct categorical levels of the emotional well being dependent variable. For example, one possible outcome variable could have two levels, i.e., "clinical depression" and "no clinical depression;" comprised of SF-12 MCS scores of ≤ 34 and "all other scores," respectively. However, merging a score of "35" with scores ranging up to 70, and labeling this level of the emotional well being variable as merely "not depressed" was not determined to be advantageous over the use of a metric-level dependent given the conceptual underpinnings of the SF-MCS 12 (see Chapter IV). Dichotomous or ordinal-level coding strategies could have merit grounded in a particular research question other than those guiding this study.

In terms of considering an ordinal logit regression model, the regression diagnostic issues illuminated above would emerge in the form of possible violations of

the parallel regression (proportional odds) assumption, i.e., the assumption that the slope coefficient across each binary regression are statistically identical (Long & Freese, 2003). This latter point is not used to justify using OLS in this study, but merely to suggest that using an ordinal logit model would not alleviate the potential problems identified via the regression diagnostics conducted, *a priori*.

CONCLUSION

The use of a multivariate linear regression model to examine the data in this study is not without limitations. While this investigator believes that the diagnostics support the position that the functional form of the regression models in this study are linear, assumptions of normality and homoscedasticity of errors across observations are not so clear. The later two statistical issues constitute threats to the validity of the regression model and could result in biased standard errors that are used to test the statistical significance of the regression coefficients (although the standard errors were systematically increased by a factor of 1.2 as discussed in Chapter IV when weighted data were examined) and perhaps more fundamental questions concerning the use of t- and F-tests. In light of these potential concerns, this investigator presented the findings as "provisional" and in need of replication in future studies. However, an interpretation of the results of this study should consider that similar and consistent findings have been reported in previous reported research.

BIBLIOGRAPHY

Abidin, R. R. (1990). Parenting stress index (3rd ed.). Charlottesville, VA: Pediatric Psychology Press.

Achenbach, T. M. (1992). Manual for the child behavior checklist/2-3 and 1992 profile. Burlington, VT: University of Vermont Department of Psychiatry.

Achenbach, T. M. (1991). Manual for the child behavior checklist: 4-18 and 1991 profile. Burlington, VT: University of Vermont Department of Psychiatry.

Addams, J. (1899). A function of the social settlement. Annals of the American Academy of Political and Social Science, 13, 323-345.

Addams, J. (1902). Democracy and social ethics. NY: The Macmillan Company.

Adams, B. N. (1970). Isolation, function, and beyond: American kinship in the 1960s. Journal of Marriage and the Family, November, 575-597.

Albrecht, R. (1954). The parental responsibilities of grandparents. Marriage and Family Living, 16, 201-204.

Aldous, J. (1985). Parent-adult child relations as affected by the grandparent status. In V. L. Bengtson & J.F. Robertson (Eds.), Grandparenthood (pp. 117-132). Beverly Hills, CA: Sage.

Aldous, J. (1995). New views of grandparents in intergenerational context. Journal of Family Issues, 16, 104-122.

Allison, D. P. (2002). Missing data. Sage University paper series on quantitative applications in the social sciences, series number 07-136. Thousand Oaks, CA: Sage.

American Psychiatric Association. (1994). Diagnostic and statistical manual of mental

disorders (4th ed.). Washington, DC: Author.

Aneshensel, C. S. (1992). Social stress: Theory and research. Annual Review of Sociology, 18, 15-38.

Aneshensel, C. S. & Sucoff, C. A. (1996). The neighborhood context of adolescent mental health. Journal of Health and Social Behavior, 37(December), 293-310.

Apfel, N. H., & Seitz, V. (1991). Four models of adolescent mother-grandmother relationships in black inner-city families. Family Relations, 40, 421-429.

Apple, D. (1956). The social structure of grandparenthood. American Anthropologist, 58, 656-663.

Atkinson, R. M. (Ed.). (1984). Alcohol and drug abuse in old age. Washington, D.C.: American Psychiatric Press.

Atkinson, R. M. (1999). Depression, alcoholism, and ageing: A brief review. International Journal of Geriatric Psychiatry, 14, 905-910.

Atkinson, R. M. & Mirsa, S. (2002). Mental disorders and symptoms in older alcoholics. In A. M. Gurnack, R. Atkinson, & N. J. Osgood (Eds.), Treating alcohol and drug abuse in the elderly (pp. 50-71). NY: Springer Publishing.

Badger, T. A. (1993). Physical health impairment and depression among older adults. IMAGE: Journal of Nursing Scholarship, 25(4), 325-330.

Bandura, A. (1977a). Social learning theory. Englewood Cliffs, N.J: Prentice-Hall, Inc.

Bandura, A. (1977b). Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 84(2), 191-215.

Bandura, A. (1986). Foundations of social thought and action: A social cognitive theory.

Englewood Cliffs, NJ: Prentice-Hall.

Bahr, K. S. (1994). The strings of Apace grandmothers: Observations on commitment, culture, and caretaking. Journal of Comparative Family Studies, 25, 233-248.

Baranowski, M.D. (1982). Grandparent-adolescent relations: Beyond the nuclear family. Adolescence, 17, 575-584.

Baranowski, M.D. (1985). Men as grandfathers. In S. M. Hanson & F. W. Bozett (Eds.), Dimensions of fatherhood (pp. 217-242). Beveraly Hills, CA: Sage.

Baranowski, M. D. (1990). The grandfather-grandchild relationship: Meaning and exchange. Family Perspective, 24, 201-214.

Beckett, J. O. & Dungee-Anderson, D. (2000). Older persons of color: Asian/Pacific Islander Americans, African Americans, Hispanic Americans, and American Indians. In R. L Schneider, N. P. Kropf, & A. J. Kisor (Eds.), Gerontological social work (2nd ed., pp. 257-301). Belmont, CA: Wadsworth.

Bengtson, V. L. & Robertson, J. F. (1985). Grandparenthood. Beverly Hills, CA: Sage.

Bengtson, V.L. (1985). Diversity and symbolism in grandparent roles. In V. L. Bengtson & J. F. Robertson (Eds.), Grandparenthood (pp. 11-25). Beverly Hills, CA: Sage.

Berry, W. D. & Feldman, S. (1985). Multiple regression in practice. Sage University paper series on quantitative applications in the social sciences, series number 07-050. Beverly Hills, CA: Sage.

Berry, W. D. (1993). Understanding regression assumptions. Sage University paper series on quantitative applications in the social sciences, series number 07-092. Newbury Park, CA: Sage.

Bertalanffy, L. von. (1968). General system theory: Foundations, development, applications. NY: Braziller.

Besharov, D.J. (1989). The children of crack: Will we protect them? Public Welfare, Fall, 6-11.

Billingsley, A. (1970). Black families and white social science. Journal of Social Issues, 26(1), 127-142.

Boardman, J.D., Finch, B.K., Ellison, C. G., Williams, D.R., & Jackson, J.S. (2001). Neighborhood disadvantage, stress, and drug use among adults. Journal of Health and Social Behavior, 42, 151-165.

Bohrnstedt, G. W. & Carter, T. M. (1971). Robustness in regression analysis. In H. L. Costner (Ed.), Sociological methodology (pp. 118-146). San Francisco, CA: Jossey-Bass.

Bowman, K. M. & Jellinek, E. M. (1981). Alcohol addiction and its treatment. In E. M. Jellinek (Ed.), Alcohol addiction and chronic alcoholism (pp. 3 – 80). NY: Arno Press. (Original work published 1942).

Braithwaite, V. (1992). Caregiving burden. Research on Aging, 14(1), 3-27.

Broadhead, W. E., Gehlbach, S. H., De Gruy, F. V., & Berton, K. H. (1988). The Duke-UNC functional social support questionnaire. Medical Care, 26(7), 709-723.

Bronfenbrenner, U. (1979). The ecology of human development: Experiments by nature and design. Cambridge, MA: Harvard University Press.

Brooks-Gunn, J., Duncan, G. J., & Sealand, N. (1993). Do neighborhoods influence child and adolescent development? American Journal of Sociology, 99(2), 353-395.

Bryson, K. & Casper, L. M. (1999). Co resident grandparents and grandchildren. Current Population Reports: Special Studies P23-198. Washington, DC: U.S. Census Bureau.

Bryson, K. (2001, November). New Census Bureau data on grandparents raising grandchildren. Paper presented at the 54th Annual Scientific meeting of The Gerontological Society of America, Chicago, IL.

Burnett, D. (1997). Grandparents raising grandchildren in the inner city. Families in Society, September, 489-499.

Burnette, D. (1999a). Physical and emotional well-being of custodial grandparents in Latino families. American Journal of Orthopsychiatry, 69(3), 305-318.

Burnette, D. (1999b). Social relationships of latino grandparent caregivers: A role theory perspective. The Gerontologist, 39(1), 49-58.

Burnette, D. (2000). Grandparents as family caregivers: Advances in mental health practice, programming, and policy. Journal of Mental Health and Aging, 6(4), 263-267.

Burton, L. M. & Bengtson, V. L. (1985). Black grandmothers: Issues of timing and continuity of roles. In V. L. Bengtson & J.F. Robertson (Eds.), Grandparenthood (pp. 61-77). Beverly Hills, CA: Sage.

Burton, L. M. (1987). Young grandmothers: Are they ready? Social Science, 72, 191-194.

Burton, L. M. (1992). Black grandparents rearing children of drug-addicted parents: stressors, outcomes, and social service needs. The Gerontologist, 32(6), 744-751.

Burton, L. M. & Dilworth-Anderson, P. (1991). The intergenerational family roles of

aged black Americans. Marriage & Family Review, 16(3/4), 311-330.

Burton, L. M., Dilworth-Anderson, P. & Meriwether-deVries, C. (1995). Context and surrogate parenting among contemporary grandparents. Marriage & Family Review, 20(3/4), 349-366.

Caliandro, G. & Hughes, C. (1998). The experience of being a grandmother who is the primary caregiver for her HIV-positive grandchild. Nursing research, 47(2), 107-113.

Cherlin, A. & Furstenberg, F. F. (1986). The new American grandparent. New York: Basic Books.

Chiriboga, D. A. (1989). Stress and loss in middle age. In R. A. Kalish (Ed.), Midlife loss: Coping strategies (pp. 42-88). Newbury Park, CA: Sage Publications.

Cochrane, J. J., Goering, P. N., & Rogers, J. M. (1997). The mental health of informal caregivers in Ontario: An epidemiological survey. American Journal of Public Health, 87(12), 2002-2007.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc. Publishers.

Cohen, J. & Cohen, P. (1983). Applied multiple regression/correlation analysis for the behavioral sciences. Hillsdale, N.J.: L. Erlbaum Associates

Conway, F. & Stricker, G. (2003). An integrative assessment model as a means of intervention with the grandparent caregiver. In B. Hayslip & J. H. Patrick (Eds.), Working with custodial grandparents (pp. 45-57). NY: Springer Publishing Co.

Corcoran, K. & Fischer, J. (2000). Measures for clinical practice (3rd ed.) (Vol. 2, pp. 327-328). NY: Free Press.

Crawford, M. (1981). Not disengaged: Grandparents in literature and reality, an empirical study in role satisfaction. Sociological Review, 29, 499-519.

Creasey, G. L. & Koblewski, P. J. (1991). Adolescent grandchildren's relationships with maternal and paternal grandmothers and grandfathers. Journal of Adolescence, 14, 373-387.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. Psychometrika, 31, 93-96.

Crumbley, J. & Little, R. L. (1997). Relatives raising children: An overview of kinship care. Washington, DC: Child Welfare League of America Press.

Cunningham-Burley, S. (1986). Becoming a grandparent. Ageing and Society, 6, 453-470.

Cutrona, C. E., Russell, D. W., Hessling, R. M., Brown, P. A., & Murry, V. (2000). Direct and moderating effects of community context on the psychological well being of African-American women. Journal of Personality and Social Psychology, 79(8), 1088-1101.

Davis, J. A. (1985). The logic of causal order. Sage University paper series on quantitative applications in the social sciences, series number 07-055. Beverly Hills, CA: Sage.

Davis, D. R. & DiNitto, D. M. (2005). Gender and the use of drugs and alcohol: Fact, fiction, and unanswered questions. In C. McNeece & D. M. DiNitto (Eds.), Chemical dependency: A systems approach (3rd ed., pp. 503 - 545). Boston, MA: Allyn and Bacon.

Day, J. C. (1996). Population Projections of the United States by Age, Sex, Race, and Hispanic Origin: 1995 to 2050, U.S. Bureau of the Census, Current Population Reports, P25-1130, U.S. Government Printing Office, Washington, DC.

Denzin, N. K. (1987). Treating alcoholism. Newbury Park, CA: Sage.

Derogatis, L. R. (1983). SCL-90-R administration, scoring and procedures manual-II. Towson, MD: Clinical Psychometric Research.

De Long, A. J. (1982). Synthesis and synergy: Developing models in man-environment relations. In M. P. Lawton, P. G. Windley, & T. O. Byerts (Eds.), Aging and the environment: Theoretical approaches (pp. 19-32). NY: Springer Publishing Co.

Denham, T.E. & Smith, C.W. (1989). The influence of grandparents on grandchildren: A review of the literature and resources. Family Relations, 38, 345-350.

DiNitto, D. M. & Webb, D. K. (2005). Substance use disorders and co-occurring disabilities. In C.A. McNeece & D.M. DiNitto (Eds.), Chemical dependence: A systems approach (3rd ed., pp. 423-483). Boston, MA: Allyn and Bacon.

Doka, K.J. & Mertz, M.E. (1988). The meaning and significance of great-grandmotherhood. The Gerontologist, 28, 192-197.

Dowd, K., Kinsey, S., Wheeless, S., Thissen, R., Richardson, J., Mierzwa, F., & Biemer, P. (2000). National survey of child and adolescent well-being: General file user's manual. Ithaca, NY: National Data Archive on Child Abuse and Neglect.

Dowd, K., Kinsey, S., Wheeless, S., Thissen, R., Richardson, J., Mierzwa, F., & Biemer, P. (2003). National survey of child and adolescent well-being: General file user's manual (August Release). Ithaca, NY: National Data Archive on Child Abuse and

Neglect.

Dowdell, E. B. (1995). Caregiver burden: Grandmothers raising their high risk grandchildren. Journal of Psychosocial Nursing, 33, 27-30.

Dressel, P. L., Barnhill, S. K. (1994). Reframing gerontological thought and practice: The case of grandmothers with daughters in prison. The Gerontologist, 34(5), 585-591.

Dunn, V. K., & Sacco, W. P. (1989). Psychometric evaluation of the Geriatric Depression Scale using an elderly community sample. Psychology and Aging, 4, 125-126.

Eisenberg, A.R. (1988). Grandchildren's perspectives on relationships with grandparents: The influence of gender across generations. Sex Roles, 19, 205-217.

Emick, M. A. & Hayslip, B. (1999). Custodial grandparenting: Stresses, coping skills, and relationships with grandchildren. International Journal of Aging and Human Development, 48(1), 35-61.

Erikson, E. H. (1982). The life cycle completed. NY: W.W. Norton & Company, Inc.

Finlayson, R. E. (1984). Prescription drug abuse in older persons. In R. M. Atkinson (Ed.), Alcohol and drug abuse in old age (pp. 61-70). Washington, DC: American Psychiatric Association.

Finlayson, R. E. (1984). Misuse of prescription drugs. In A. M. Gurnack (Ed.), Older adults' misuse of alcohol, medicines, and other drugs (pp. 158-184). NY: Springer Publishing Co.

Fisher, C. S. (1982). To dwell among friends: Personal networks in town and city. Chicago, IL: University of Chicago Press.

Fisher, L.R. (1983). Transition to grandmotherhood. International Journal of Aging and Human Development, 16, 67-78.

Flaherty, M. J., Facteau, L., & Garver, P. (1987). Grandmother functions in multigenerational families: An exploratory study of back adolescent mothers and their infants. Maternal-Child Nursing Journal, 16(1), 61-73.

Flaherty, M. J. (1988). Seven caring functions of black grandmothers in adolescent mothering. Maternal-Child Nursing Journal, 17(3), 191-207.

Folkman, S., Lazarus, R. S., Pimley, S., & Novacek, J. (1987). Age differences in stress and coping processes. Psychology and Aging, 2, 171-184.

Force, L. T., Botsford, A., Pisano, P. A., & Holbert, A. (2000). Grandparents raising grandchildren with and without a developmental disability: Preliminary comparisons. Journal of Gerontological Social Work, 33(4), 5-21.

Fowler, F. J. (1984). Survey research methods. Beverly Hills, CA: Sage Publications.

Fox, J. (1991). Regression diagnostics. Newbury Park, CA: Sage.

Frazier, E. F. (1939). The negro family in the United States. Chicago, IL: University of Chicago Press.

Fuller-Thomson, E., Minkler, M., & Driver, D. (1997). A profile of grandparents raising grandchildren in the United States. The Gerontologist, 37(3), 6-11.

Fuller-Thomson, E. & Minkler, M. (2000). African-American grandparents raising grandchildren: A national profile of demographic and health characteristics. Health & Social Work, 25(2), 109-118.

Fuller-Thomson, E. & Minkler, M. (2003). Housing issues and realities facing

grandparent caregivers who are renters. The Gerontologist, 43(1), 92-98.

Furstenburg, F. F., Cook, T. D., Eccles, J., Elder, G. H., & Sameroff, A. (1999). Managing to make it: Urban families and adolescent success. Chicago, IL: The University of Chicago Press.

Geis, K.L. & Ross, C.E. (1998). A new look at urban alienation: The effect of neighborhood disorder on perceived powerlessness. Social Psychology Quarterly, 61(3), 232-246.

George, L. K. & Gwyther, L.P. (1986). Caregiver well being: A multidimenstional examination of family caregivers of demented adults. The Gerontologist, 26, 253-259.

George, L. K. (1989). Stress, social support, and depression over the life-course. In K. S. Markides & G. L. Cooper (Eds.), Aging, stress and health (pp. 241-267). NY: John Wiley & Sons.

George, L. K. (2000). Well-being and sense of self: What we know and what we need to know. In K. W. Schaie & J. Hendricks (Eds.), The evolution of the aging self (pp. 1-35). NY: Springer Publishing Company, Inc.

George, L. K. (2003). Embedding control beliefs in social and cultural context. In S. H. Zarit, L. I. Pearlin, & K. W. Schaie, K. W. (Eds.), Personal control in social and life course contexts (pp. 33-43). NY: Springer Publishing Company, Inc.

Germain, C. B. (1991). Human behavior in the social environment: An ecological view. New York, NY: Columbia University Press.

Giarrusso, R., Feng, D., Wang, Q., & Silverstein, M. (1996). Parenting and co-parenting of grandchildren: Effects on grandparents' well being and family solidarity.

International Journal of Sociology and Social Policy, 16(12), 124-155.

Given, C. W., Given, B., Stommel, M., Collins, C, King, S., & Franklin, S. (1992). The caregiver reaction assessment (CRA) for caregivers to persons with chronic physical and mental impairments. Research in Nursing and Health, 15, 271-283.

Gladstone, J.W. (1989). Grandmother-grandchild contact: The mediating influence of the middle generation following marriage breakdown and remarriage. Canadian Journal on Aging, 8, 355-365.

Goldstein, E. (1995). Psychosocial approach. In R. L. Edwards (Ed.), Encyclopedia of social work: Vol. 3. (19th ed., pp. 1948-1954). Washington, D.C.: NASW Press.

Goodman, C. & Silverstein, M. (2002). Grandmothers raising grandchildren: Family structure and well-being in culturally diverse families. The Gerontologist, 42(5), 676-689.

Grad, J. & Sainsbury, P. (1963). Mental illness and the family. The Lancet,(March), 544-547.

Grant, B. F. & Harford, T. C. (1995). Comorbidity between DSM-IV alcohol use disorders and major depression: Results of a national survey. Drug and Alcohol Dependence, 39, 197-206.

Greenfield, D. P. (1995). Prescription drug abuse and dependence. Springfield, IL: Charles C. Thomas Publisher.

Greenly, J. & Oei, T. (1999). Alcohol and tension reduction. In K. E. Leonard & H. T. Blane (Eds.), Psychological theories of drinking and alcoholism (2nd ed.), (pp. 14-53). NY: Guliford Press.

Gurnack, A. M. (Ed.). (1997). Older adults' misuse of alcohol, medicines, and other drugs. Research and practice issues. NY: Springer Publishing.

Hagestad, G. O. & Burton, L. M. (1986). Grandparenthood, life context, and family development. American Behavioral Scientist, 29(4), 471-484.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). Multivariate data analysis (5th ed.). Upper Saddle River, NJ: Prentice-Hall, Inc.

Hamilton, L. C. (1992). Regression with graphics: A second course in applied statistics. Pacific Grove, CA: Brooks/Cole Publishing Company.

Hamilton, L. C. (2003). Statistics with stata. Belmont, CA: Wadsworth Group/Thomson Learning.

Hardy, A. M. (1993). Regression with dummy variables. Sage University paper series on quantitative applications in the social sciences, series number 07-093. Newbury Park, CA: Sage.

Harrington, M. (1962). The other America: Poverty in the United States. NY: Penguin Books.

Hayslip, B., Shore, R. J., Henderson, C. E., & Lambert, P. L. (1998). Custodial grandparenting and the impact of grandchildren with problems on role satisfaction and role meaning. Journal of Gerontology: Social Sciences, 53B(3), S164-S173.

Hayslip, B. & Goldenberg-Glen, R. (2000). Grandparents raising grandchildren: Theoretical, empirical, and clinical perspectives. NY: Springer Publishing Co.

Hayslip, B. & Patrick, J. H. (2003). Working with custodial grandparents. NY: Springer Publishing Co.

Hayslip, B. & Patrick, J. H. (2003). Custodial grandparenting viewed from within a life-span perspective. In B. Hayslip & J. H. Patrick (Eds.), Working with custodial grandparents (pp. 3–11). NY: Springer Publishing Co.

Hegar, R. L. & Scannapieco, M. (1995). From family duty to family policy: The evolution of kinship care. Child Welfare, 74(1), 200 – 217.

Hegar, R. L. & Scannapieco, M. (Eds.). (1999). Kinship foster care: Policy, practice, and research. NY: Oxford University Press.

Henry, C. S., Ceglican, C. P., & Matthews, C. W. (1992). The role behaviors, role meanings, and grandmothering styles of grandmothers and step-grandmothers: Perceptions of the middle generation. Journal of Divorce and Remarriage, 17, 1-22.

Hill, S. (1999). African American children: Socialization and development in families. Thousand Oaks, CA: Sage.

Hirshorn, B. A. (1998). Grandparents as caregivers. In M. E. Szinovacz (Ed.). Handbook on Grandparenthood (pp. 200-214). Westport, CT: Greenwood Press.

Holahan, C. K. & Holahan, C. J. (1987). Life stress, hassles, and self-efficacy in aging: A replication and extension. Journal of Applied Social Psychology, 17(6), 574-592.

Holahan, C. J., Moos, R. H., Holahan, C. K., Cronkite, R. C., & Randall, P. K. (2001). Drinking to cope, emotional distress and alcohol use and abuse: A ten-year model. Journal of Studies on Alcohol, 62, 190-198.

Huang, L., Cerborne, F., & Gfroerer, J. (1998). Children at risk because of parental substance abuse. In Substance Abuse and Mental Health Administration, Office of Applied Studies, Analyses of Substance Abuse and Treatment Need Issues (Analytic

Series A-7). Rockville, MD: US Department of Health and Human Services, Substance Abuse and Mental Health Services Administration.

Hunt, M. M. (1993). The story of psychology. NY: Doubleday.

Hunter, A. G., & Taylor, R. J. (1998). Grandparenthood in African-American families. In M. E. Szinovacz (Ed.), Handbook on Grandparenthood (pp. 70-86). West Port, CT: Greenwood Press.

Ikels, C. (1998). Grandparenthood in cross-cultural perspective. In M. E. Szinovacz (Ed.), Handbook on Grandparenthood (pp. 40-52). West Port, CT: Greenwood Press.

Ittelson, W. H. (1982). Some issues facing a theory of environment and behavior. In M. P. Lawton, P. G. Windley, & T. O. Byerts (Eds.), (pp. 8-18). Aging and the environment: Theoretical approaches. NY: Springer Publishing Co.

Jackson, J. S., Antonucci, T. C., & Gibson, R. C. (1995). Ethnic and cultural factors in research on aging and mental health: A life-course perspective. In D. K. Padgett (Ed.), Handbook on ethnicity, aging, and mental health (pp. 22-46). West Port, CT: Greenwood Press.

Jendrek, M. P. (1994). Grandparents who parent their grandchildren: Circumstances and decisions. The Gerontologist, 34(2), 206-216.

Joslin, D. & Brouard, A. (1995). The prevalence of grandmothers as primary caregivers in a poor pediatric population. Journal of Community Health, 20(5), 383-401.

Johnson, C.L. (1983). A cultural analysis of the grandmother. Research on Aging, 5, 547-568.

Jones, F. C. (1973). The lofty role of the black grandmother. Crisis, 80, 19-21.

Kagee, A. (2001). Review of the SF-36 Health Survey. In Burros Mental Measurements Yearbook, No. 14 [On-line]. Available: Ascension No. 14091918

Kahana, E. (1982). A congruence model of person-environment interaction. In M. P. Lawton, P. G. Windley, & T. O. Byerts (Eds.), (pp. 97-121). Aging and the environment:Theoretical approaches. NY: Springer Publishing Co.

Kamo, Y. (1998). Asian grandparents. In M. E. Szinovacz (Ed.), Handbook on Grandparenthood (pp. 97-112). West Port, CT: Greenwood Press.

Karls, J. M. & Wandrei, K. E. (1995). Person-in-environment. In R. L. Edwards (Ed.), Encyclopedia of social work: Vol. 3. (19th ed., pp. 1818-1827). Washington, D.C.: NASW Press.

Kaufman, S. & Goldberg-Glenn, R. S. (2000). A comparison of low-income caregivers in public housing: Differences in grandparent and non-grandparent needs and problems. In B. Hayslip & R. Goldberg-Glen (Eds.), Grandparents raising grandchildren (pp. 369-382). NY: Springer Publishing Co.

Kennedy, G.E. & Keeney, V.T. (1988). The extended family revisited: Grandparents rearing grandchildren. Child Psychiatry and Human Development, 19, 26-35.

Kennedy, G.E. (1992). Quality in grandparent/grandchild relationships. International Journal of Aging and Human Development, 35, 83-98.

Kelly, S. (1993). Caregiver stress in grandparents raising grandchildren. IMAGE: Journal of Nursing Scholarship, 25(4), 331-337.

Kelley, S. J., Whitley, D., Sipe, T. A., & Yorker, B. C. (2000). Psychological distress in grandmother kinship care providers: The role of resources, social support, and physical

health. Child Abuse & Neglect, 24(3), 311-321.

Kelly, S. (2002). Child maltreatment in the context of substance abuse. In Ed, Myers, J. E. B., Berliner, L., Briere, J., Hendrix, C. T., Jenny, C., Reid, T. A. (Eds.), The APSAC handbook on child maltreatment (2nd ed.) (pp. 105- 117). Thousand Oaks, CA: Sage Publications.

Kessler, R.C., Nelson, C.B., McGonagle, K.A., Edlund, J.J., Frank, R.G., & Leaf, P.J. (1996). The epidemiology of co-occuriring addictive and mental disorders: Implications for prevention and service utilization. American Journal of Orthopsychiatry, 66(1), 17-31.

Kessler, R. C. (1997a). The effects of stressful life events of depression. Annual Review of Psychology, 48(24), 191-207

Kessler, R.C., Crum, R.C., Warner, L.A., Nelson, C.B., Schulenberg, J., & Anthony, J.C. (1997b). Lifetime co-occurrence of DSM-III-R alcohol abuse and dependence with other psychiatric disorders in the national comorbidity survey. Archives in General Psychiatry, 54, 313-321.

Kessler, R. C., Andrews, G., Mroczek, D., Ustun, B., & Wittchen, H. U. (1998). The WHO-Composite International Diagnostic Interview Short-Form (CIDI-SF). International Journal of Methods in Psychiatric Research, 7(4), 171-185.

King, V., Russell, S. T., & Elder, G. H. (1998). Grandparenting in family systems: An ecological perspective. In M. E. Szinovacz (Ed.), Handbook on Grandparenthood (pp. 53-69). West Port, CT: Greenwood Press.

Kish, L. (1965). Survey sampling. NY: John Wiley & Sons, Inc.

Kivett, V.R. (1993). Racial comparisons of the grandmother role: Implications for strengthening the family support system of older black women. Family Relations, 42, 165-172.

Kivnick, H. Q. (1981). Grandparenthood and the mental health of grandparents. Ageing and Society, 1, 365-391.

Kivnick, H.Q. (1982). Grandparenthood: An overview of meaning and mental health. The Gerontologist, 22, 59-66.

Kivnick, H. Q. (1985). Grandparenthood and mental health: Meaning, behavior, and satisfaction. In V. L. Bengtson & J. F. Robertson (Eds.) Grandparenthood (pp. 151-158). Beverly Hills, CA: Sage.

Kopera-Frye, K. & Wiscott, R. C. (2000). Intergenerational continuity: Transmission of beliefs and culture. In B. Hayslip & R. Goldenberg-Glen (Eds.), Grandparents raising grandchildren: Theoretical, empirical, and clinical perspectives (pp. 65-84). NY: Springer Publishing Co.

Kopera-Frye, K., Wiscott, R. C., & Begovic, A. (2003). Lessons learned from custodial grandparents involved in a community support group. In B. Hayslip & J. H. Patrick (Eds), Working with custodial grandparents (pp. 243-256). NY: Springer Publishing.

Koppelman, J. & Jones, J.M. (1989). Crack: It's destroying fragile low-income families. Public Welfare, Fall, 13-15.

Koppelman, J. & Jones, J.M. (1989). Crack: It's destroying fragile low-income families. Public Welfare, Fall, 13-15.

LaGrange, R. L. & Ferraro, K. F. (1992). Perceived risk and fear of crime: Role of social

and physical incivilities. Journal of Research in Crime and Delinquency, 29(3), 311-334.

Latkin, C. A. & Curry, A. D. (2003). Stressful neighborhoods and depression: A prospective study of the impact of neighborhood disorder. Journal of Health and Social Behavior, 44(March), 34-44.

Lawton, M. P. (1982). Competence, environmental press, and the adaptation of older people. In M. P. Lawton, P. G. Windley, & T. O. Byerts (Eds.), Aging and the environment: Theoretical approaches (pp. 33-59). NY: Springer Publishing Co.

Lawton, M. P., Kleban, M. H., Moss, M., Rovine, M., & Glicksman, A. (1989). Measuring caregiver appraisal. Journal of Gerontology: Psychological Sciences, 44(3), P61-71.

Lazarus, R.S. (1966). Psychological stress and the coping process. NY: McGraw-Hill.

Lazarus, R. S. & Folkman, S. (1984). Stress, appraisal, and coping. New York: Springer Publishing Company.

Lee, E. S., Rorthofer, R. N., & Lorimor, R. J. (1989). Analyzing complex survey data. Newbury Park, CA: Sage Publications.

Lewin, K. (1935). A dynamic theory of personality. NY: McGraw-Hill

Lewis, D. A. & Maxfield, M. G. (1980). Fear in the neighborhoods: An investigation of the impact of crime. Journal of Research in Crime & Delinquency, 17(2), 160-189.

Liberto, J. G., Oslin, D. W., & Ruskin, P. E. (1996). Alcoholism in the older population. In L. L. Carstensen, B. A. Edelstein, & L. Dornbrand (Eds.), The practical handbook of clinical gerontology (pp. 324-348). Thousand Oaks, CA: Sage.

Long, J. S. & Trivedi, P. K. (1992). Some specification tests for the linear regression model. Sociological Methods & Research, 2(2), 161-204.

Long, J. S. & Freese, J. (2003). Regression models for categorical dependent variables using Stata (revised edition). College Station, TX: Stata Corporation.

Markides, K. S. (2003). Sense of control and aging: Racial and cultural factors. In S. H. Zarit, L. I. Pearlin, & K. W. Schaie, K. W. (Eds.), Personal control in social and life course contexts (pp. 107-114). NY: Springer Publishing Company, Inc.

Markus, H. R. & Herzog, R. (1992). The role of the self-concept in aging. In K. W. Schaie, & M. P. Lawton (Eds.), Annual Review of Gerontology and Geriatrics, vol. 11. NY: Springer.

Massey, D. S. (1996). The age of extremes: Concentrated affluence and poverty in the twenty-first century. Demography, 33(4), 395-412.

Mayer, M. (2002). Grandparents raising grandchildren: Circumstances and interventions. School Psychology International, 23(4), 371-385.

McCready, W. (1985). Styles of grandparenting among white ethnics. In V. L. Bengtson & J.F. Robertson (Eds.), Grandparenthood (pp. 49-60). Beverly Hills, CA: Sage.

McGreal, C.E. (1986). Grandparental role-meaning types: A critical evaluation. Infant Mental Health Journal, 7, 235-241.

McNeece, C. A. & DiNitto, D. M. (2005). Screening, diagnosis, assessment, and referral. In C. McNeece & D. M. DiNitto (Eds.), Chemical dependency: A systems approach (3rd ed., pp. 93-129). Boston, MA: Allyn and Bacon.

McNeece, C. A. & DiNitto, D. M. (2005). Ethnicity, culture, and substance abuse

disorders. In C. McNeece & D. M. DiNitto (Eds.), Chemical dependency: A systems approach (3rd ed., pp. 328- 400). Boston, MA: Allyn and Bacon.

McNeece, C. A. & DiNitto, D. M. (2005). The physiological and behavioral consequences of alcohol and drug abuse. In C. McNeece & D. M. DiNitto (Eds.), Chemical dependency: A systems approach (3rd ed., pp. 61-90). Boston, MA: Allyn and Bacon.

Miller, M. V. (1979). Variations in Mexican American family life: A review synthesis of empirical research. Aztlan, 9, 209-231.

Miller, N. S. (1991). Alcohol and drug dependence. In J. Sadavoy, L. W. Lazarus, & Jarvik, L. F. (Eds.). Comprehensive review of geriatric psychiatry (pp. 387-401). Washington, DC: American Psychiatric Press.

Minkler, M., Roe, K. M., & Price, M. (1992). The physical and emotional health of grandmothers raising grandchildren in the crack cocaine epidemic. The Gerontologist, 32(6), 752-761.

Minkler, M. and Roe, K. M. (1993). Grandmothers as caregivers: Raising children of the crack cocaine epidemic. Newbury Park, CA: Sage.

Minkler, M., Fuller-Thomson, E., Miller, D., and Driver, D. (1997). Depression in grandparents raising grandchildren. Archives of Family Medicine, 6, 445-452.

Minker, M. & Fuller-Thomson, E. (1999). The health of grandparents raising grandchildren: Results of a national study. American Journal of Public Health, 89(9), 1384-1389.

Minkler, M. (1999). Intergenerational households headed by grandparents: Contexts,

realities, and implications for policy. Journal of Aging Studies, 13(2), 199-218.

Mirowsky, J. & Ross, C. (1986). Social patterns of distress. Annual Review of Sociology, 12, 23-45.

Mirowsky, J. (1995). Age and the sense of control. Social Psychology Quarterly, 58, 31-43.

Mirowsky, J. & Ross, C. E. (2002). Measurement for a human science. Journal of Health and Social Behavior, 43(June), 152-170.

Mirowsky, J. & Ross, C. E. (2003). Social causes of psychological distress (2nd ed.). Hawthorne, NY: Aldine de Gruyter.

Moriwaki, S. Y. (1974). The affective balance scale: A validity study with aged samples. Journal of Gerontology, 29(1), 73-78.

Murphy, G. E. (2002). Alcoholism, drug abuse, and suicide in the elderly. In A. M. Gurnack, R. Atkinson, & N. J. Osgood (Eds.), Treating alcohol and drug abuse in the elderly (pp. 72-82). NY: Springer Publishing.

Murray, H. A. (1938). Explorations in personality. NY: Oxford University Press.

Musil, C. M. (1998). Health, stress, coping, and social support in grandmother caregivers. Health Care for Women International, 19, 441-455.

Musto, D.F. (1989). America's first cocaine epidemic. Wilson Quarterly, 13(3), 59-64.

National Institute on Alcohol Abuse and Alcoholism (NIAAA) (2000). Tenth Special Report to the U. S.Congress on Alcohol and Health. USDHHS, Public Health Service, NIAAA.

National Institute on Drug Abuse (NIDA) (2001). Prescription drugs: Abuse and

addiction. Research Report Series (NIH Pub. No. 01-4881).

Neugarten, B. L. & Weinstein, K. K. (1964). The changing American grandparent. Journal of Marriage and the Family, May, 199-204.

Neugarten, B. L., Moore, J. W., & Lowe, J. C. (1970). Age norms, age constraints, and adult socialization. American Journal of Sociology, 70, 710-717.

O'Doherty, F. (1991). Is drug use a response to stress? Drug and Alcohol Dependence, 29, 97-106.

Padgett, D. K. (1995a). Concluding remarks and suggestions for research and service delivery. In D. K. Padgett (Ed.), Handbook on Ethnicity, Aging, and Mental Health (pp. 304 – 319). Westport, CT: Greenwood Publishing Co.

Padgett, D. K. (1995b). (Ed.). Handbook on Ethnicity, Aging, and Mental Health. Westport, CT:Greenwood Publishing Co.

Park, R. (1969). The city: Suggestions for the investigation of human behavior in the urban environment. In R. Sennett (Ed.), Classic essays on the culture of cities (pp. 91-130). Englewood Cliffs, NJ:Prentice-Hall, Inc.

Parsons, T. (1943). The kinship system of the contemporary United States. American Anthropologist, 45, 22-38.

Pearlin, L. I. & Schooler, C. (1978). The structure of coping. Journal of Health and Social Behavior, 19(March), 2-21.

Pearlin, Lieberman, M. A., Menaghan, E. G., & Mullan, J. T. (1981). The stress process. Journal of Health and Social Behavior, 22(December), 337-356.

Pearlin, L. I. (1989). The sociological study of stress. Journal of Health and Social

Behavior, 30(September), 241-256.

Pearlin, L.I., Mullan, J.T., Semple, S.J., & Skaff, M.M. (1990). Caregiving and the stress process: Overview of concepts and their measures. The Gerontologists, 30(5), 583-593.

Pearlin, L. I. & Pioli, M. F. (2003). Personal control: Some conceptual turf and future directions. In S. H. Zarit, L. I. Pearlin, & K. W. Schaie, K. W. (Eds.), Personal control in social and life course contexts (pp. 1-21). NY: Springer Publishing Company, Inc.

Pecora, P. J., Whittaker, J. K., Maluccio, A. N., & Barth, R. (2000). The child welfare challenge: Policy, practice, and research (2nd ed.). NY: Aldine de Gruyter.

Peddle, N. & Wang, C. (2001). Current trends in child abuse prevention, reporting, and fatalities: The 1999 fifty state survey. Michigan, IL: Prevent Child Abuse America.

Peirce, R. S., Frone, M. R., Russell, M., & Cooper, M. L. (1994). Relationship of financial strain and psychosocial resources to alcohol use and abuse: The mediating role of negative affect and drinking motives. Journal of Health and Social Behavior, 35(4), 291-308.

Perkins, D. D. & Taylor, R. B. (1996). Ecological assessments of community disorder: Their relationship to fear of crime and theoretical implications. American Journal of Community Psychology, 24(1), 63-107.

Personal Responsibility and Work Opportunity Act of 1996, P.L. 104-193.

Piper, A. I. & Langer, E. J. (1986). Aging and mindful control. In M. M. Baltes & P. B. Baltes (Eds.), The psychology of control and aging (pp. 71-89). Hillsdale, NJ: Lawrence Erlbaum Associates.

Polen, M. R. & Green, C. A. (2001). Caregiving, alcohol use, and mental health

symptoms among HMO members. Journal of Community Health, 26(4), 285-301.

Proctor, B. D. & Dalaker, J. (2002). Poverty in the United States: 2001 (U.S. Census Bureau, Current Population Reports, P60-219). U.S. Government Printing Office, Washington, DC.

Pruchno, R. A. & McKenney, D. (2002). Psychological well-being of black and white grandmothers raising grandchildren: Examination of a two-factor model. Journal of Gerontology: Psychological Sciences, 57B(5), P444-P452.

Qualls, S.Q. (1999). Mental health and mental disorders in older adults. In J.C. Cavanaugh & S. K. Whitbourne (Eds.), Gerontology: An interdisciplinary perspective (pp. 305-328). NY: Oxford University Press.

Radcliffe-Brown, A. R. (1940). On joking relationships. Africa, 13, 195-210.

Radcliffe-Brown, A. (1952). Structure and function in primitive society. London: Cohen & West.

Radloff, L. S. (1977). The CES-D scale: A self-report scale for research in the general population. Applied Psychological Measurement, 1, 385-401.

Ramirez, R. R. & de la Cruz, G. P. (2002). The Hispanic Population in the United States: March 2002, Current Population Reports, P20-545, U.S. Census Bureau, Washington DC.

Regier, D.A., Narrow, W.E., Rae, D.S., Manderscheid, R.W., Locke, B.Z., & Goodwin, F.K. (1993). The de facto US mental and addictive disorders service system: Epidemiologic catchment area prospective 1-year prevalence rates of disorders and services. Archive of General Psychiatry, 50, 85-94.

Research Triangle Institute (2001). SUDAAN User's Manual, Release 8.0. Research Triangle Park, NC: Research Triangle Institute.

Robert, S. A. (1998). Community-level socioeconomic status effects on adult health. Journal of Health and Social Behavior, 39(March), 18-37.

Robertson, J. F. (1976). Significance of grandparents: Perceptions of young adult grandchildren. The Gerontologist, 16(2), 137-140.

Robertson, J. F. (1977). Grandparenthood: A study of role conceptions. Journal of Marriage and the Family, 39, 165-174.

Roe, K. M. & Minkler, M. (1999). Grandparents raising grandchildren: Challenges and responses. Generations, 22(4), 25-32.

Ross, C. E. & Mirowsky, J. (1999). Disorder and decay: The concept and measurement of perceived neighborhood disorder. Urban Affairs Review, 34(3), 412-432.

Ross, C. E. & Mirowsky, J. (2001). Neighborhood disadvantage, disorder, and health. Journal of Health and Social Behavior, 42(September), 258-276.

Ross, C. E. (2000). Neighborhood disadvantage and adult depression. Journal of Health and Social Behavior, 41, 177-187.

Ross, C. E. & Jang, S. J. (2000). Neighborhood disorder, fear, and mistrust: The buffering role of social ties with neighborhors. American Journal of Community Psychology, 28(4), 401-420.

Ross, C. E., Reynolds, J. R., & Geis, K. J. (2000). The contingent meaning of neighborhood stability for residents' psychological well being. American Sociological Review, 65, 581-597.

Rotter, J. B. (1966). Generalized expectancies for internal vs. external control of reinforcements. Psychological Monographs, 80, 1-28.

Rowe, J. W. & Kahn, R. L. (1998). Successful aging. NY: Random House.

Rubin, A. & Babbie, E. (1997). Research methods for social work (3rd ed.). Pacific Grove, CA: Brooks/Cole Publishing Company.

Ruiz, S. D. (2004). Amazing grace: African American grandmothers as caregivers and conveyors of traditional values. Westport, CT: Praeger Publishers.

Sampson, R. J. & Groves, W. B. (1989). Community structure and crime: Testing social -disorganization theory. American Journal of Sociology, 94(4), 774-802.

Sampson, R. J. & Raudenbush, S. W., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. Science, 277, 918-924.

Sands, R. G. and Goldberg-Glen, R. S. (2000). Factors associated with stress among grandparents raising their grandchildren. Family Relations, 49, 97-105.

Sarason, I. G., Levine, H. M., Basham, R. B., & Sarason, B. R. (1983). Assessing social support: The social support questionnaire. Journal of Personality and Social Psychology, 44(1), 127-139.

Sarason, I. G., Sarason, B. R., Shearin, E. N., & Pierce, G. R. (1987). A brief measure of social support: Practical and theoretical implications. Journal of Social and Personal Relationships, 4, 497-510.

Scannapieco, M. (1999). Formal kinship care practice models. In R. L. Hegar & M. Scannapieco, M. (Eds.), Kinship foster care: Policy, practice, and research (pp. 71-83). NY: Oxford University Press.

Schieman, S., & Turner, H. A. (1998). Age, disability, and the sense of mastery. Journal of Health and Social Behavior, 39, 169-186.

Schmidt, A.M., & Padilla, A. (1983). Grandparent-grandchild interaction in a Mexican American group. Hispanic Journal of Behavioral Sciences, 5, 181-198.

Schulz, R., Wrosch, C., & Heckhausen, J. (2003). The life span theory of control: Issues and evidence. In S. H. Zarit, L. I. Pearlin, & K. W. Schaie, K. W. (Eds.), Personal control in social and life course contexts (pp. 233-262). NY: Springer Publishing Company, Inc.

Sedlak, A. J. & Broadhurst, D. D. (1996). Third national incidence study of child abuse and neglect: Final report. Washington, DC: Government Printing Office.

Seeman, M. (1959). On the meaning of alienation. American Sociological Review, 24, 788-791.

Seeman M. (1983). Alienation motifs in contemporary theorizing: The hidden continuity of classic themes. Social Psychology Quarterly, 46(3), 171-184.

Seeman, M. & Anderson, G. S. (1983). Alienation and alcohol: The role of work, mastery, and community in drinking behavior. American Sociological Review, 48, 60-77.

Seeman, M., Seeman, A. Z., & Budros, A. (1988). Powerlessness, work, and community: A longitudinal study of alienation and alcohol use. Journal of Health and Social Behavior, 29, 185-198.

Seeman, M. & Seeman, A. Z. (1992). Life strains, alienation, and drinking behavior. Alcoholism:Clinical and Experimental Research, 16(2), 199-205.

Seligman, M. E. (1975). Helplessness: On depression, development, and death. San Francisco, CA: Freeman.

Semidei, J., Radel, L. F., & Nolan, C. (2001). Clear linkages and promising responses. Child Welfare, 80(4), 109-129.

Sennett, R. (1969). Classic essays on the culture of cities. Englewood Cliffs, NJ: Prentice-Hall, Inc.

Silverstein, M., Giarrusso, R., & Bengtson, V.L. (1998). Intergenerational solidarity and the grandparent role. In M. E. Szinovacz (Ed.), Handbook on grandparenthood (pp. 144-158). Westport, CT: Greenwood Press.

Simmel, G. (1969). The metropolis and mental life. In R. Sennett (Ed.), Classic essays on the culture of cities (pp. 47-60). Englewood Cliffs, NJ:Prentice-Hall, Inc.

Skaff, M. M. & Gardiner, P. (2003). Cultural variations in meaning and control. In S. H. Zarit, L. I. Pearlin, & K. W. Schaie, K. W. (Eds.), Personal control in social and life course contexts (pp. 83-105). NY: Springer Publishing Company, Inc.

Skinner, B. F. (1953). Science and human behavior. NY: Macmillan.

Skinner, E. A. (1996). A guide to constructs of control. Journal of Personality and Social Psychology, 71, 549-570.

Skogan, W. G. (1990). Disorder and decline: Crime and the spiral decay in American neighborhoods. NY: The Free Press.

Slife, B. D. & Williams, R. N. (1995). What's behind the research? Discovering hidden assumptions in the behavioral sciences. Thousand Oaks, CA: Sage.

Smith, J. W. (1997). Medical manifestations of alcoholism in the elderly. In A. M.

Gurnack (Ed.), Older adults' misuse of alcohol, medicines, and other drugs: Research and practice issues (pp. 54-93). NY: Springer Publishing.

Smith, C. J., Beltran, A., Butts, D. M., & Kingson, E. R. (2001). Grandparents raising grandchildren: Emerging program and policy issues for the 21st century. Journal of Gerontological Social Work, 35(1), 33-45.

SPSS (2002). SPSS 11.5: A brief guide. Upper Saddle River, New Jersey: Prentice Hall, Inc.

Stack, C. (1974). All our kin: Strategies for survival in a black community. NY: Harper & Row.

StataCorp. (2003a). Stata statistical software: Release 8.0. College Station, TX: Stata Corporation.

StataCorp. (2003b). Reference manual release 8.0 (Vols. 1 – 4). College Station, TX: Stata Corporation.

StataCorp. (2003c). Stata survey data: Reference manual release 8.0. College Station, TX: Stata Corporation.

StataCorp. (2003d). User's manual: Stata release 8.0. College Station, TX: Stata Corporation.

Stewart, A. L., Ware, J. E., Sherbourne, C. D., & Wells, K. B. (1992). Psychological distress/well being and cognitive functioning measures. In A. L. Stewart & J. E. Ware (Eds.), Measuring functioning and well being: The medical outcomes study approach (pp. 102-142). Durham, NC: Duke University Press.

Stiffman, A. R., Hadley-Ives, E., Elze, D., Johnson, S., & Dore, P. (1999). Impact of

environment on adolescent mental health and behavior: Structural equation modeling. American Journal of Orthopsychiatry, 69(1), 73-86.

Strawbridge, W. J., Wallhagen, M., I., Shema, S. J., & Kaplan, G. A. (1997). New burdens or more of the same? Comparing grandparent, spouse, and adult-child caregivers. The Gerontologist, 37(4), 505-510.

Substance Abuse and Mental Health Services Administration (SAMHSA) (2001a). Results from the 2001 national survey on drug use and health: National findings (Office of Applied Studies, NHSDA Series H-17, DHHS Publication No. SMA 02-3758). Rockville, MD.

Substance Abuse and Mental Health Services Administration (SAMHSA) (2001b, November). The NHSDA Report: Substance use among older adults. Rockville, MD: SAMHSA, Office of Applied Studies.

Substance Abuse and Mental Health Services (SAMHSA) Administration (2001c, December). The DASIS Report: Older adults in substance abuse treatment. Rockville, MD: SAMHSA, Office of Applied Studies.

Substance Abuse and Mental Health Services Administration (SAMHSA) (2004). Results from the 2003 national survey on drug use and health: National findings (Office of Applied Studies, NSDUH Series H-25, DHHS Publication No. SMA 04-3964). Rockville, MD.

Sudarkasa, N. (1981). Interpreting the African heritage in Afro-American family organization. In H. P. McAdoo (Ed.), Black families (pp. 37-53). Beverly Hills, CA: Sage.

Sussman, M. B. (1954). Family continuity: Selective factors which affect relationships between families at generational levels. Marriage and Family Living, May, 112-120.

Szinovacz, M. E. (1998a). Handbook on grandparenthood. Westport, CT: Greenwood Press.

Szinovacz, M. E. (1998b). Grandparents today: A demographic profile. The Gerontologist, 38, 37-52.

Szinovacz, M. E., Deviney, S., and Atkinson, M. P. (1999). Effects of surrogate parenting on grandparents' well-being. Journal of Gerontology: Social Sciences, 54B(6), S376-S388.

Taylor, R. B. & Shumaker, S. A. (1990). Local crime as a natural hazard: Implications for understanding the relationship between disorder and fear of crime. American Journal of Community Psychology, 18(5), 619-641.

Telleen, S., Herzog, A, and Kilbane, T. L. (1989). Impact of a family support program on mothers' social support and parenting stress. American Journal of Orthopsychiatry, 59(3), 410-419.

Thomas, J.L. (1989). Gender and perceptions of grandparenthood. International Journal of Aging and Human Development, 29, 269-282.

Thompson, E. H. & Kramer, B. J. (2002). Men as caregivers: Theory, research, and service implications. NY: Springer.

Troll, L. E. (1983). Grandparents: The family watchdogs. In T. H. Brubaker (Ed.), Family Relationships in later life (pp.135-149). Beverly Hills, CA: Sage.

Troll, L. E. (1985). The contingencies of grandparenting. In V. L. Bengtson & J. F.

Robertson (Eds.), Grandparenthood (pp. 11-25). Beverlly Hills, CA: Sage.

Turner, R. J. & Rozell, P. (1994). Psychological resources and the stress process. In W. R. Avison, & I. H. Gotlib (Eds.), Stress and mental health: Contemporary issues and prospects for the future (pp. 179-209). NY: Plenum Press.

U.S. Department of Health and Human Services. (1999) Mental Health: A Report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Health, National Institute of Mental Health.

U.S. Census Bureau (2000a). Detailed Tables PCT8. Census 2000 Summary File 3 (SF3): Sample Data. Retrieved Februrary, 4, 2003, from http://factfinder.census.gov/servlet/DDTable?_ts=62405535760.

U.S. Census Bureau (2000b). United States quick facts. http://quickfacts.census.gov/qfd/states/48000.html. U. S. Census Bureau (2001). Children living in the home of their grandparents: 1970 to Present. Internet Release Date: June, 29, 2001, from http://www.census.gov/ population/socdemo/hh-fam/tabCH-7.txt.

U. S. Census Bureau (2003). Grandparents living with grandchildren: 2000 (Report No. C2KBR-31). Washington, DC: US Census Bureau.

U.S. Department of Health and Human Services, Administration on Children, Youth and Families. (2003). Child maltreatment 2001. Washington, DC: U.S. Government Printing Office.

U.S. Department of Health and Human Services, Administration on Children, Youth and Families. (2004). Child maltreatment 2002. Washington, DC: U.S. Government

Printing Office.

U.S. Department of Health and Human Services, Administration on Children, Youth and Families, Children's Bureau. (2000). Report to the Congress on kinship foster care. Washington, DC: U.S. Government Printing Office.

U.S. Department of Health and Human Services. (1999). Blending Perspectives and Building Common Ground. A Report to Congress on Substance Abuse and Child Protection. Washington, D.C.: U.S. Government Printing Office.

Veroff, J., Douvan, E., & Kulka, R. A. (1981). The inner American: A self-portrait from 1957 to 1976. NY: Basic Books.

Vinton, L. & Wambach, K. G. (2005). Alcohol and drug use among the elderly. In C.A. McNeece & D.M. DiNitto (Eds.), Chemical dependence: A systems approach (3rd ed., pp. 484-502). Boston, MA: Allyn and Bacon.

Von Hentig, H. (1945). The sociological function of the grandmother. Social Forces, 24(1/4), 389-392.

Waldfogel, J. (2000). Child welfare research: How adequate are the data? Children and Youth Services Review, 22(9/10), 705-741.

Wallace, J. M. (1999). The social ecology of addiction: Race, risk, and resilience. Pediatrics, 103, 1122-1127.

Walsh, F. (Ed.) (1993). Normal family processes. New York: The Guilford Press.

Ware, J. E., Kosinski, M., & Deller, S. D. (1994). SF-36 Physical and mental health summary scales: A user's manual. Boston, MA: The Health Institute.

Ware, J.E., Kosinski, M., & Keller, S. D. (1995). SF-12: How to score the SF-12 physical

and mental health summary scales (2nd ed.). Boston, MA: The Health Institute, New England Medical Center.

Ware, J. E., Kosinski, M., & Keller. (1996). A 12-item short-form health survey: Construction of scales and preliminary tests of reliability and validity. Medical Care, 34(3), 220-233.

Ware, J.E., Kosinski, M., Turner-Bowker, D. M., Gandek, B. (2002). How to score version 2 of the SF-12 Health Survey (with a supplement documenting version 1). Lincoln, RI: QualityMetric Incorporated.

Weber, M. (1969). The nature of the city. In R. Sennett (Ed.), Classic essays on the culture of cities (pp. 23-46). Englewood Cliffs, NJ:Prentice-Hall, Inc.

Williams, N. & Torrez, D. J. (1998). Grandparenthood among hispanics. In M. E. Szinovacz (Ed.), Handbook on Grandparenthood (pp. 87-96). West Port, CT: Greenwood Press.

Wilson, W.J. (1987). The truly disadvantaged: The inner city, the underclass, and public policy. Chicago: University of Chicago Press.

Wilson, W.J. (1996). When work disappears: The world of the new urban poor. NY: Alfred A Knopf, Inc.

Wilson, M. N. (1989). Child development in the context of the black extended family. American Psychologist, 44(2), 380-386.

Winch, R. F. (1968). Some observations on extended familism in the United States. In R. F. Winch & L. W. Goodman (Eds.), Selected studies in Marriage and the Family (3rd ed.) (pp. 127-138. NY: Holt, Rinehart, & Winston.

Wirth, L. (1938). Urbanism as a way of life. The American Journal of Sociology, 44(1), 1-24.

Wohl, E. C., Lahner, J. M., & Jooste, J. (2003). Group processes among grandparents raising grandchildren. In B. Hayslip & J. H. Patrick (Eds), Working with custodial grandparents (pp. 195-211). NY: Springer Publishing Co.

Wolinsky, F. D. & Stump, T. E. (1996). Age and the sense of control among older adults. Journal of gerontology, Social Sciences, 51B(4), S217-S220.

Wood, V. (1982). Grandparenthood: An ambiguous role. Generations, 7, 22-23.

Wright, L. K., Clipp, E. C., & George, L. K. (1993). Health consequences of caregiver stress. Medicine, Exercise, Nutrition, and Health, 2, 181-195.

Yates, M.E., Tennstedt, S., & Chang, B. (1999). Contributors to and mediators of psychological well being for informal caregivers. Journal of Gerontology: Psychological Sciences, 54B(1), P12-P22.

Zarit, S. H., Pearlin, L. I., & Schaie, K. W. (Eds.). (2003). Personal control in social and life course contexts. New York, NY: Springer Publishing Company, Inc.

VITA

Richard Albert Longoria was born in Karnes City, Texas on July 19, 1964, the son of Irma Diana Longoria and Ricardo Alberto Longoria. After graduating from Oliver Wendell Holmes High School, San Antonio, Texas, in 1982, he entered St. Mary's University in San Antonio, Texas. He received a Bachelor of Arts degree from St. Mary's University in May 1986 and later earned the graduate degrees of Master of Science and Master of Social Work in December 1990 and May 1994, respectively, from Our Lady of the Lake University in San Antonio, Texas. He has over fifteen years of social service experience serving children and families at the county, state, and federal levels. In August 1999 he entered the Graduate School of The University of Texas at Austin.

Permanent Address: 1779 Oak Glen, New Braunfels, Texas 78132

This dissertation was typed by the author.